

**OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY  
AIR QUALITY DIVISION**

**MEMORANDUM**

**June 16, 2008**

**TO:** Phillip Fielder, P.E., Permits and Engineering Group Manager  
Air Quality Division

**THROUGH:** Kendal Stegmann, Senior Environmental Manager  
Compliance and Enforcement

**THROUGH:** Jian Yue, P.E., Engineering Section

**THROUGH:** Phil Martin, P.E., Engineering Section

**THROUGH:** Peer Review

**FROM:** Eric L. Milligan, P.E., Engineering Section

**SUBJECT:** Evaluation of Permit Application No. **98-172-TV (PSD)**  
Valero Refining Company - Oklahoma  
Valero Ardmore Refinery (SIC 2911)  
Ardmore, Carter County  
Latitude: 34.206° N      Longitude: -97.104° W  
Directions from I-35: east three miles on Highway 142

**SECTION I. INTRODUCTION**

Valero Refining Company – Oklahoma (Valero), has filed an application for a Part 70 operating permit. The facility currently has numerous operating permits and a current construction permit (Permit No. 98-172-C (M-20) PSD which was issued on April 4, 2007). This permit will incorporate all applicable requirements for all of the emission units at the facility and will supersede all previous permits.

## SECTION II. PROCESS DESCRIPTIONS

The Valero Ardmore Refinery's primary standard industrial classification (SIC) code is 2911. The refinery processes medium and sour crude oils from both the domestic and foreign markets. Major production and processing units include the following units at their nominal capacities: a 100 thousand barrel per day (MBPD) crude unit, a 34 MBPD vacuum-tower unit, a 14 MBPD asphalt blow-still unit, a 11.4 MBPD polymer modified asphalt (PMA) unit, a 32 MBPD distillate heavy-oil desulfurization (DHDS) unit, a 32 MBPD catalytic feed hydrotreater (CFHT) unit, a 15 MBPD Hydrocracking Unit (HCU), a 30 MBPD fluid catalytic cracking unit (FCCU) with two-stage regeneration, a 33 MBPD naphtha hydrotreater (NHT) unit, a 26 MBPD catalytic reformer unit, a 16 MBPD Sat-Gas Unit, a 7.5 MBPD alkylation unit, a 7.5 MBPD isomerization unit, a 119 long ton per day (LTPD) sulfur recovery unit (SRU), a 130 LTPD SRU, and a 26 million standard cubic feet per day (MMSCFD) hydrogen production unit. The majority of raw crude oil is received on-site through utilization of an integrated pipeline system.

The refinery's process heaters, steam boilers, compressors, and generators are capable of producing approximately 2.4 billion BTU/hr of energy transfer. The refinery has approximately 2.8 million barrels of refined product storage capability. Products include conventional and reformulated low sulfur gasoline, diesel fuel, asphalt products, propylene, butane, propane, and sulfur. Refined products are transported via pipeline, railcar, and tank truck.

### A. General Function Of Petroleum Refining

Basically, the refining process does four types of operations to crude oil:

1. Separation: Liquid hydrocarbons are distilled by heat separation into gases, gasoline, diesel fuel, fuel oils, and heavier residual material.
2. Conversion:
  - i. *Cracking*: This process breaks or cracks large hydrocarbons molecules into smaller ones. This is done by thermal or catalytic cracking.
  - ii. *Reforming*: High temperatures and catalysts are used to rearrange the chemical structure of a particular oil stream to improve its quality.
  - iii. *Combining*: Chemically combines two or more hydrocarbons such as liquid petroleum gas (LPG) materials to produce high grade gasoline.
3. Purification: Converts contaminants to an easily removable or an acceptable form.
4. Blending: Mixes combinations of hydrocarbon liquids to produce a final product(s).

### B. General Descriptions of Individual Processes

#### Crude Unit

The Crude Unit receives a blended crude charge from sweet and sour crude oil feedstock. The crude charge is heated, desalted, heated further, and then fed into the atmospheric tower where separation of light naphtha, heavy naphtha, kerosene, diesel, atmospheric gas oil and reduced crude takes place. The reduced crude from the bottom of the atmospheric tower is pumped through the diesel stripper reboiler and directly to the vacuum tower pre-heater.

After being processed in the vacuum tower pre-heater, the reduced crude is then processed in the Vacuum Unit to achieve a single stage flash vaporization. A single-stage flash vaporization of the heated reduced crude yields a hot well oil, a light vacuum gas oil, a heavy vacuum gas oil, slop wax, and a vacuum bottoms residual that may be charged to the asphalt blowstill for viscosity improvement or pumped directly to asphalt blending.

### **DHDS Unit**

The DHDS Unit consists of a feed section, reactor section, effluent separator section, recycle gas amine treating section, and a fractionation section. In the feed section, diesel and gas oil are fed to the unit from the Crude Unit main column. From the feed section, the mixed streams are fed to the reactor section. The feed exchanges heat with the feed/reactor effluent exchangers and is charged to the reactor charge heater. From the charge heater, the heated feed passes through a reactor bed where the sulfur and nitrogen are removed. Once the feed leaves the reactor section, it then must be separated in the reactor effluent separator section. The hydrogen gas and hydrocarbon liquid are separated. The hydrogen gas flows to the recycle gas amine treating section where the hydrogen sulfide ( $H_2S$ ) rich gas stream is cleaned using amine to absorb the sour gas. The hydrocarbon liquid flows to the stripping section of the DHDS unit.

In the stripping section, any LPG with  $H_2S$  that is left in the liquid hydrocarbon stream is stripped out with steam. Once the feed has been through the stripping section, it is preheated and fed to the fractionator tower where the kerosene, diesel, and gas oil products are fractionated out to meet product specifications.

### **Saturated-Gas Unit**

The feedstock to the Sat-Gas Plant is made up of crude oil atmospheric tower overhead liquid product and the platformer debutanizer overhead liquid product. The debutanizer feed is pumped from the debutanizer feed drum to the 40-tray debutanizer. The debutanized light straight run gasoline leaves the bottom of the debutanizer and is sent to the NHT Unit. The condensed overhead stream is pumped to the 30-tray deethanizer. Ethane,  $H_2S$ , and lighter components are removed in the overhead stream and sent to the unsaturated gas treating area in the FCCU. The deethanizer bottoms stream that contains propane and butanes is sent to the saturate  $C_3/C_4$  extractor for mercaptan removal and then to the depropanizer. The condensed liquid from the depropanizer overhead accumulator is sent to the propane dryer and then to storage. The depropanizer bottoms stream is sent to the deisobutanizer located at the Alky Unit for separation of iso-butane and normal butane.

### **Alkylation Unit**

The purpose of this unit is to produce high-octane gasoline by catalytically combining light olefins with isobutane in the presence of hydrofluoric (HF) acid. The mixture is maintained under conditions selected to maximize alkylate yield and quality. The alkylate produced is a branched chain paraffin that is generally the highest quality component in the gasoline pool. Besides the high octane, the alkylate produced is clean burning and has excellent antiknock properties. Propane and butane are byproducts.

**NHT Unit**

The purpose of this unit is to remove the sulfur, nitrogen, and water from the Platformer and Penex (Isomerization) charge stocks. These are contaminants to the Platformer and Penex catalysts. This is accomplished by passing the naphtha feed stocks over hydrotreating catalyst at elevated temperatures in the presence of hydrogen at high pressures. Under these conditions, the sulfur and nitrogen components are converted to  $H_2S$  and ammonia ( $NH_3$ ), which are then easily removed from the liquid effluent by distillation stripping. Removal of the contaminants provides clean charge stocks to the Platformer and Penex units, which increases the operational efficiency of both units.

**Platformer Unit**

The purpose of this unit is to upgrade low octane naphtha to higher-octane gasoline blending stock. The naphtha is a specific boiling range cut from the Crude Unit. The naphtha is upgraded by using platinum catalyst to promote specific groups of chemical reactions. These reactions promote aromatic formation, which gives the boost in octane. A byproduct from the reactions is hydrogen. The hydrogen is processed to the NHT or CFHT units to aid in hydrotreating of the feedstock(s). The reactions produce light hydrocarbon gases, which are sent to the Sat-Gas unit.

The CCR section of the Platformer Unit allows the reaction section to operate efficiently while maintaining throughput year round. The CCR continuously regenerates a circulating stream of catalyst from the reactors. During normal operations in the reaction section, catalyst activation is lowered due to feedstock contaminants and coke buildup. The regeneration section continuously burns off the coke deposit and restores activity, selectivity, and stability to essentially fresh catalyst levels.

**Isomerization Unit**

The purpose of this unit is to increase the octane of light naphtha. The octane is increased by catalytically rearranging straight chain hydrocarbons to branched hydrocarbons. This process is called "isomerization." The bulk of the products from the unit are the isomerates ( $C_5$ 's and  $C_6$ 's), which are added to the refinery's gasoline blending pool. The advantage of using isomerate is good motor octane, benzene saturation, and aromatic reduction. There will be a small yield of light hydrocarbons, which are added to the refinery fuel gas system.

**CFHT**

Hydrotreating is a process to remove impurities present in hydrocarbons and/or catalytically stabilize petroleum products by reacting them with hydrogen. The CFHT has two primary functions: 1) improve the quality of the feed to the FCCU by removing impurities (metals, sulfur, and nitrogen), and 2) increasing the hydrogen content by saturating the aromatics in the gas oils and light cycle oil feedstocks.

Feed to the CFHT enters the unit from several sources: high sulfur diesel from the storage vessels; light cycle oil from the FCCU; gas oil from the Crude Unit; either vacuum or atmospheric residue (asphalt) from the Crude Unit; and hydrogen from the Hydrogen Unit. The combined liquid feed is filtered and then heated in a series of exchangers before entering the feed surge drum. Liquid feed from the surge drum is pumped to the reaction section of the unit

through the multistage charge pump. Hydrogen feed is compressed to the unit operating pressure by two reciprocating compressors. The fresh hydrogen feed along with recycled hydrogen from a steam turbine driven centrifugal compressor combines with the liquid feed in the reaction section of the unit.

Combined feed to the unit is heated in the reactor charge heater and then enters the first of three reactors in series. The reactors each contain a different type of catalyst with a very specific, but complementary role. The primary role of the catalyst in the first two reactors is to remove metals contained in the feed such as nickel and vanadium. The catalyst in the third reactor is primarily designed to convert sulfur and nitrogen species into a form in which they can be removed. The effluent from the reactors then enters a series of separators.

There are four separators in the CFHT: the hot high pressure separator, the hot flash drum, the cold high pressure separator, and the cold flash drum. The primary function of these vessels is to separate the oil from the hydrogen-rich gas in the reactor effluent. Each vessel is operated at different conditions (temperature and pressure) to allow certain components in the reactor effluent to vaporize. Hydrogen recovered in the cold high-pressure separator is routed to the recycle gas amine treater. Light ends, such as methane and ethane, are sent to the refinery sour fuel gas system. Water recovered is sent to a sour water stripper. All of the remaining oil is then combined and sent to the fractionation section of the unit.

Hydrogen recovered from the reactor effluent contains  $H_2S$ . The unit is designed to have 0.5-1.0%  $H_2S$  in the recycle gas. To control the  $H_2S$  at the desired level, a portion of the recycle gas is amine treated. Recycle gas enters the bottom of the amine absorber and is contacted by a counter-current flow of amine. The  $H_2S$  is absorbed by the amine and sweet hydrogen exits the top of the absorber. Amine exits the bottom of the absorber and is regenerated in the ARU.

The oil from the separators is routed to the fractionation section of the unit. The oil is heated in the fractionator charge heater and then enters the fractionator. The fractionator is a trayed tower. The fractionator separates the oil into three streams: overhead naphtha product, diesel product, and FCCU feed. The diesel product is stripped of light ends and  $H_2S$  in the distillate stripper before being sent to storage.

## HCU

Hydrocracking is a process for cracking large molecules into smaller ones using high pressure and hydrogen in a catalyst bed or a series of beds. The feed must first be hydrotreated to remove impurities which act as a poison to the cracking catalyst.

The main function of the HCU is to hydrotreat FCCU light cycle oil (LCO) and heavy diesel to produce Ultra Low Sulfur Diesel (ULSD). As a side benefit, cracking beds were added to crack some of the diesel into gasoline. The HCU is highly integrated with the CFHT. Some equipment is shared between the two. A CFHT shutdown necessitates a HCU shutdown. For this reason, the HCU has sometimes been called a 'Co-Processor'.

Feed to the HCU consists of LCO from the FCCU, heavy diesel from the crude unit, and heavy diesel from the CFHT. The combined feed is pumped at high pressure through a series of preheat exchangers after combining with makeup hydrogen from the CFHT unit. It then enters the reactor charge heater where it is heated before entering the reactor.

The reactor consists of catalyst beds with a cooling medium or 'quench' injected between each bed. The quench after the first bed is cold liquid feed. The remaining quenches are cold makeup gas. Due to the exothermic or heat releasing, nature of the reactions that occur in the reactor, the bed temperatures must be closely monitored and controlled with the quenches to avoid an uncontrollable reaction. The hot reactor effluent passes through a series of heat exchangers for preheating the feed and producing steam before flowing to the separation section.

The separation section consists of three separator vessels: a Hot Separator, a Hot Flash Drum, and a Cold Separator. Each vessel is operated at different conditions to force a rough separation of hydrogen, fuel gas, and oil. Hydrogen recovered in the Cold Separator is sent to the CFHT as makeup gas. Fuel gas recovered from the Hot Flash Drum is treated and then sent to the RFG system. The oil from the Hot Flash Drum and the Cold Separator mix and flow to the Fractionation section, located in the DHDS area.

### **FCCU**

The main purpose of the FCCU is to break up heavy hydrocarbons into a mixture of lighter hydrocarbons and then separate the mixture. The major divisions of the plant are the FCCU charge system, the reactor-regenerators, the main (fractionator) column, and the gas concentration unit.

In the FCC Charge System, the feed is collected in a common feedstock surge drum and heated before it is sent to the FCCU. The feedstock comes from four sources: residuum from the vacuum tower, treated gas oil from storage, gas oil from the crude/DHDS unit, and hot gas oil from the CFHT Unit. The hot and cold charge streams are mixed in the charge drum to reach a desired temperature. The outlet stream from this drum combines with the residuum stream and is pumped through the charge heater where, if necessary, the feed is heated. Finally, the feed is sent to the FCCU reactor to effect the desired cracking reactions.

The catalytic cracking for the process is achieved by processing the superheated feedstock with a cracking promoting catalyst. A byproduct, coke, is produced during the cracking reactions. As a result, the catalyst is covered with coke that must be burned off the catalyst. This is achieved in the FCCU No. 1 and No. 2 regenerators. The hot catalyst is recirculated through the system to mix with more feed to control the reactor temperature.

The cracked gas oil must be separated into useable products, namely slurry or #6 fuel oil, LCO or diesel fuel, FCCU gasoline or blend stock for motor gasoline and light liquefied petroleum gases (LPG) including olefins.

**Sour Water Strippers**

The purpose of the sour water strippers is to remove  $H_2S$  and ammonia from the total sour water inlet stream. The  $H_2S$  and ammonia are stripped from the sour water feed as the water travels down the column. Rising steam strips out the  $H_2S$  and ammonia gases. These gases are routed to the SRU/Shell Claus Off-gas Treating (SCOT) Unit to convert the  $H_2S$  gas stream to sulfur and to destroy the ammonia gas in the thermal section of the SRU.

**Amine Regeneration Unit (ARU)**

Methyldiethanolamine (MDEA) is used to recover carbon dioxide ( $CO_2$ ) and  $H_2S$  to form a weak and unstable salt. These processes take place in the fuel gas absorber and amine contactors. Once this weak and unstable amine salt solution is formed, the reaction must be reversed to clean up or regenerate the amine solution. This reaction takes place in the ARU.

The MDEA solution is fed to the tower from the MDEA flash drum. As the solution travels down the tower, the acid gases are stripped as the salt solution is broken down by heat, which is supplied by two steam reboilers at the base of the tower. The lean regenerated MDEA is then pumped back to the lean MDEA surge drum where the low- and high-pressure MDEA charge pumps charge the regenerated amine solution back to the fuel gas absorber and amine contactors.

**SRU / SCOT Process**

The SRU converts the  $H_2S$  stream from the ARU to liquid elemental sulfur to be loaded out by railcar or truck. This process takes place in two general sections: 1)  $H_2S$  is converted to sulfur at high temperatures without the aid of catalytic conversion; and 2) sulfur is formed at much lower temperatures with the aid of catalytic conversion.

In section one, high thermal temperatures are maintained by using liquid oxygen, which also aids in the destruction of ammonia contained in the sour water gases which are destroyed in the thermal section of the SRU. In section two, unconverted sulfur is processed through two or more successive catalytic stages. Each stage consists of process gas reheating, sulfur conversion over an activated alumina catalyst and then cooling to condense and recover the sulfur formed.

The SCOT Unit operation is much the same as the MDEA Unit operation. Unprocessed tail gas from the SRU is heated and mixed with a hydrogen rich reducing gas stream. This heated tail gas stream passes through a catalytic reactor where the sulfur compounds are reconverted back to  $H_2S$ . Once the tail gases are converted back into a  $H_2S$  gas stream, these gases are routed to a quench system where the gases are cooled and the condensed water from the reactor product is routed to the sour water system. The cooled reactor effluent is then fed to an absorber/stripper section where the acid gas comes in contact with an amine solution and is absorbed, regenerated, and reprocessed by the SRU.

**Waste Water Treatment Plant (WWTP)**

The WWTP is for the purpose of treating refinery wastewater from the various units and tank farm to comply with specific discharge characteristics specified by the refinery National Pollution Discharge Elimination System (NPDES/OKPDES) permit. The system is currently comprised of an oily water sewer collection system from the various units and the tank farm, a lift station, two above ground oil water separation tanks, two aggressive bio-reaction tanks, 16 aerated lagoons and two clarifier lagoons. The system is designed to treat approximately 1,100,000 gallons of wastewater daily.

**Product Movement Storage Vessel Farm**

The purpose of the tank farm and product movement area is to receive, hold, blend, and ship hydrocarbon products in a safe and efficient manner. The major product groups include crude, intermediate feedstocks, LPG, gasolines, distillates, heavy fuel oil, and asphalts. Distillate and gasoline products are shipped via three outlets. These products are also loaded onto trucks at the truck dock. Various LPG's are loaded and unloaded by truck and rail. Asphalt and heavy fuel oil are primarily shipped by truck, but rail connections can also be used.

**Asphalt Blowstill**

The asphalt blowstill blows air through asphalt base stock to change the softening point and penetration rate of the asphalt flux, creating oxidized asphalt. The vapor flow from the asphalt blowstill is directed through a vapor scrubber to remove H<sub>2</sub>S to the blowstill incinerator.

**Polymer Modified Asphalt (PMA) Unit**

The PMA Unit blends polymer resins into asphalt base stock for modification into a finished product PMA. Flux and base stock are proportioned and measured through mass flow meters prior to introduction into the processing skid where they are blended into a base stock/flux mixture in the mixing Tank. The base stock/flux mixture is then blended with polymer via a high-shear mill before being pumped into one of two, heated and agitated, reaction tanks. After the initial reaction, the base stock/flux mixture proceeds to the acidification tank where it is mixed with superphosphoric acid. After the reaction is complete the product is either stored in one of two sales tanks or pumped directly to the black oil transfer trucks at the loading docks. Storage vessels are heated by a hot oil that is pumped through coils in each tank.



**SECTION III. EQUIPMENT - EMISSION UNIT (EU) GROUPS****STORAGE VESSELS**

Storage vessel contents will vary depending upon refinery requirements, but will be limited by the suitability of a particular tank for a particular hydrocarbon.

**EUG 1 External Floating Roof (EFR), Group 1 Storage Vessels  
Subject To NESHAP, Subpart CC**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-1018	F1	External Floating	Alkylate & Gasoline	62,850	1953
T-1019	F2	External Floating	Alkylate & Gasoline	66,868	1948
T-1082	F3	External Floating	Crude Oil	124,714	1974
T-1083	F4	External Floating	Crude Oil	124,714	1974
T-1084	F5	External Floating	Crude Oil	124,714	1978
T-1115	F6	External Floating	Gasoline	27,205	1953
T-1116	F7	External Floating	Gasoline	27,315	1953
T-1123	F8	External Floating	Gasoline /Diesel	60,766	1968
T-1124	F9	External Floating	Gasoline	111,721	1972
T-1125	F10	External Floating	Gasoline	124,398	1974
T-1126	F11	External Floating	Gasoline	124,412	1974
T-1130	F12	External Floating	Gasoline	79,414	9/1978
T-1131	F13	External Floating	Gasoline/FCCUGasoline/ ISOM/Hydrocracker Naptha	125,100	1979
T-1132	F14	External Floating	Reformate	80,138	1979

**EUG 2 Cone Roof (CR), Group 2 Storage Vessels Subject To NESHAP, Subpart CC**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-1008	P1	Cone	LCO /Slurry	2,089	1975
T-1085	P2	Cone	Slurry /#6 Fuel Oil	55,319	1953
T-1113	P3	Cone	Gas Oil / Asphalt	131,005	1959
T-1121	P4	Cone	Diesel /Jet Fuel /Distillate	40,526	1968
T-1127	P5	Cone	Diesel / Jet Fuel	80,579	1974
T-1128	P6	Cone	Diesel / Jet Fuel	80,639	1974
T-1129	P7	Cone	Diesel / Jet Fuel	2,113	1975
TK-13006	P8	Cone	Fuel Additives	339	1993

**EUG 3 EFR, Group 1 Storage Vessel Subject To NSPS, Subpart Kb**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-1155	F15	External Floating	Heavy Naphtha/Distillate	163,555	2003-4

**EUG 4 EFR, Group 2 Storage Vessel Subject to NSPS, Subpart Kb**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-1152	F16	External Floating	Sour Water Stripper Feed	11,890	1999

**EUG 5 CR, Group 2 Storage Vessels Subject To NSPS, Subpart Kb**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-153	P9	Cone	FCCU Charge/Asphalt	200,676	2003
T-156	P10	Cone	FCCU Slurry/Fuel Oil No. 6/ Asphalt	56,000	2003-4
T-1141	P11	Cone	Diesel / Kerosene	119,189	1992
T-1142	P12	Cone	Diesel / Kerosene	79,445	1992
T-5801	P13	Cone	Amine	895	2004-5

**EUG 6 CR, Group 2 Storage Vessels Subject To NESHAP, Subpart LLLLL**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-1102	P14	Cone	Asphalt /Gas Oil	75,786	1975
T-1111	P15	Cone	Asphalt /Fuel Oil /Gas Oil	55,011	1954
T-1118	P16	Cone	Asphalt	79,742	1970
T-1135	P17	Cone	PMA Crosslinking Co-Polymer	362	1968
T-1151	P18	Cone	Asphalt	206,979	1998
T-100149	P19	Cone	Asphalt	35,847	1996
T-100150	P20	Cone	Asphalt	35,847	1996
T-210003	P21	Cone	Asphalt	3,021	1996
T-210004	P22	Cone	Asphalt	6,526	1996
T-210005	P23	Cone	Asphalt	6,526	1996
T-210006	P24	Cone	Polymer Asphalt	10,197	1996
T-210007	P25	Cone	Polymer Asphalt	10,197	1996
T-210008	P26	Cone	Polymer Asphalt	11,715	2001

**EUG 7 EFR, Oil-Water Separators Subject to  
NESHAP, Subpart CC & OAC 252:100-37**

EU	Point	Roof Type	Contents	Barrels	Const. Date
V-8801	F17	External Floating	Oil / Water	17,200	1993
V-8802	F18	External Floating	Oil / Water	17,200	1993

**EUG 8 CR, Storage Vessel Subject to NSPS, Subpart Kb & Subpart QQQ**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-83001	P27	Cone	Sour Water	18,885	1993

**EUG 9 CR, Storage Vessel Subject to OAC 252:100-31**

EU	Point	Roof Type	Contents	Barrels	Const. Date
T-5602	P28	Cone	Sulfur	3,644	1999

**COMBUSTION UNITS****EUG 10 Combustion Units Subject to NSPS, Subpart J & OAC 252:100-19 & 33**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>MMBTUH</b>	<b>Const. Date</b>
B-801	P29	Boiler	72.5	1974
B-802	P30	Boiler	89.8	1975
B-803	P31	Boiler	86.8	1979
H-102A	P32	Process Heater	160.0	Mod. 1998
H-102B	P33	Process Heater	135.0	Mod. 1998
H-103	P34	Process Heater	102.6	1974
H-201	P35	Process Heater	116.7	1974
H-403	P36	Process Heater	98.7	1980
H-404/5	P37	Process Heater	99.3	Mod. 1980
H-601	P38	Process Heater	58.5	1975
H-603	P39	Process Heater	125.5	1992
H-6501	P40	Process Heater	92.1	1992
H-6502	P41	Process Heater	54.3	1992
H-15001	P42	Process Heater	326.8	1992

**EUG 11 Combustion Units Subject to NSPS, Subpart J & OAC 252:100-19**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>MMBTUH</b>	<b>Const. Date</b>
H-101	P43	Process Heater	30.8	Mod. 1998
H-301	P44	Process Heater	21.6	1974
H-401B	P45	Process Heater	14.8	1974
H-406	P46	Process Heater	28.0	1974
H-407	P47	Process Heater	25.0	1974
H-411	P48	Process Heater	28.0	1986

**EUG 12 Combustion Units Subject to OAC 252:100-19**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>MMBTUH</b>	<b>Const. Date</b>
H-401A	P49	Process Heater	16.0	1969
H-402A	P50	Process Heater	13.9	1970
H-402B	P51	Process Heater	15.8	1963
H-901	P52	Process Heater	60.0	1969
H-1016	P53	Process Heater	4.8	1954

**EUG 13 Combustion Units Subject to NSPS, Subparts J & Dc & OAC 252:100-19**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>MMBTUH</b>	<b>Const. Date</b>
H-100024	P54	Asphalt Tank Heater	13.5	1999
H-210001	P55	Process Heater	12.2	1996

**EUG 14 Combustion Units Subject to NSPS, Subparts J & Dc,  
NESHAP, MACT Standard, & OAC 252:100-19,**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>MMBTUH</b>	<b>Const. Date</b>
H-5602	P56	Hot Oil Heater	20.0	2004-5
H-6701	P57	Co-Processor Heater	11.8	2005-6

**OTHER EMISSION UNITS**

**EUG 15 Flares Subject to NSPS, Subparts A & J & NESHAP, Subparts A & CC**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
Crude Unit Flare	P58	Process Flare (East)	1976
HI-81001	P59	West Flare	1993
altfl2	P60	Alternate Alkylation Unit Flare	< 1968

**EUG 16 SRU Incinerators Subject to NSPS, Subpart J,  
NESHAP, Subpart UUU, & OAC 252:100-31**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
HI-501	P61	#1 SRU Incinerator	1995
HI-5602	P62	#2 SRU Incinerator	2004-5

**EUG 17 Asphalt Blowstill Incinerator Subject to NESHAP, Subpart LLLLL &  
NESHAP, Subpart CC**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
HI-801	P63	Asphalt Blowstill Incinerator	1992

**EUG 18 Gasoline Loading Rack Vapor Combustor Subject to NESHAP, Subpart CC**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
LPLT	P64	Light Products Loading Terminal	1996

**EUG 19 FCCU Flue Gas Scrubber Subject to NSPS, Subpart J,  
NESHAP Subpart UUU, & OAC 252:100-19 & 35**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
FGS-200	P65	FCCU Flue Gas Scrubber	2004-5

**EUG 20 CO Boilers Subject to NSPS, Subparts Db & J & OAC 252:100-19 & 33**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>MMBTUH</b>	<b>Const. Date</b>
B-253	P66	CO Boiler	144.0	2004-5
B-254	P67	Boiler/CO Boiler	144.0	2004-5

**EUG 21 Limited Use/Emergency Internal Combustion Engines**

EU	Point	Make/Model	KW (HP)	Serial #	Const. Date
EEQ-8801	P68	DMT/DMT-825D2	750	93447-1	1994
EEQ-80001	P69	Cummins/6BT5.9G-2	80	45555233	1997
EWCP-1	P70	Caterpillar 3412	(800)	38S23403	2004
EWCP-2	P71	Caterpillar 3412	(800)	38S23405	2004
EWCP-3	P72	Caterpillar 3412	(800)	38S23463	2004

**EUG 22 Flare Subject to NSPS, Subpart A**

EU	Point	Description	Const. Date
altfl1	P73	Alternate Crude Unit Flare	< 1968

**EUG 23 Instrument/Plant Air Compressor**

EU	Point	Make/Model	hp	Serial #	Const. Date
C-80018	P74	Detroit Diesel/8V-92TA	450	69102	1993

**EUG 24 SRU Molten Sulfur Storage & Loading Subject to OAC 252:100-31-26**

EU	Point	Description	# Arms	Const. Date
MSLA-520	P75	#1 SRU Sulfur Railcar Loading Rack	1	1993
LR-SB001	P76	#2 SRU Sulfur Railcar Loading Rack	3	2004
SSP-520	P77	#1 SRU Sulfur Storage Pit	N/A	1995

**EUG 25 CCR Subject to NESHAP, Subpart UUU & OAC 252:100-19 & 35**

EU	Point	Description	Const. Date
CCR	P78	Platformer Catalyst Regeneration Combustion Vent	1980

**EUG 26 FCCU Catalyst Hopper Vent Subject to OAC 252:100-19**

EU	Point	Description	Const. Date
cat_hop	P79	FCCU Catalyst Hopper Vent	Mod. 1981

**EUG 27 WWTP RTO Subject to NSPS, Subpart J,  
NESHAP Subpart FF, & OAC 252:100-19**

EU	Point	Description	MMBTUH	Const. Date
HI-8801	P80	WWTP RTO	15.9	2004

**EUG 28 Alkylate/Gasoline Loading Station Subject to NESHAP, Subpart CC**

EU	Point	Description	Const. Date
RCALOAD 900	P81	Alkylate/Gasoline Railcar Loading Station	2004

**EUG 29 Loading & Unloading**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
LPG-RC-UNLOAD	P82	Railcar LPG Unloading	1990
LPG-TT-UNLOAD	P83	Tank Truck LPG Unloading	1979
LPG-RC-LOAD	P84	Railcar LPG Loading	1982
LPG-TT-LOAD	P85	Tank Truck LPG Loading	1982

**EUG 30 Asphalt & No. 6 Fuel Oil Loading**

<b>EU</b>	<b>Point</b>	<b>Description</b>	<b>Const. Date</b>
ASPHALT-RC-LOAD	P86	Asphalt & No. 6 Fuel Oil Railcar Loading	1990
ASPHAL-TT-LOAD	P87	Asphalt & No. 6 Fuel Oil Truck Loading	1988

**EUG 31 Fugitive Equipment Leaks Subject to LDAR Programs**  
**NSPS, Subpart GGG & NESHAP, Subpart CC**

<b>EU</b>	<b>Point</b>	<b>Description</b>
LDAR 100A	F19	Area 100 (1 of 4) - Crude Unit
LDAR 100B	F20	Area 100 (2 of 4) - Crude Unit MEROX
LDAR 100C	F21	Area 100 (3 of 4) - Asphalt Blowstill Unit
LDAR 100D	F22	Area 100 (4 of 4) - Vent Gas Recovery & Compressors
LDAR 200	F23	Area 200 - Unsat Gas Unit
LDAR 250	F24	Area 250 - Olefin Unit
LDAR 300	F25	Area 300 - Sat Gas Unit
LDAR 400	F26	Area 400 - NHT & Reforming Unit
LDAR 450	F27	Area 450 - ISOM Unit
LDAR 520	F28	Area 520 - SCOT, TGTU & ARU
LDAR 550	F29	Area 550 - Fuel Gas Amine Unit
LDAR 570	F30	Area 570 - #2 TGTU
LDAR 600	F31	Area 600 – DHDS Unit
LDAR 650	F32	Area 650 – CFHT Unit
LDAR 670	F33	Area 670 – Hydrocracker/Co-Processor Unit
LDAR 700	F34	Area 700 & 720 – Plant MEROX Unit
LDAR 800	F35	Area 800 – Plant Utilities System & Caustic Unit
LDAR 810	F36	Area 810 – East & West Flare System
LDAR 880	F37	Area 880 – WWTP
LDAR 900	F38	Area 900 – Alkylation Unit
LDAR 950	F39	Area 950 – C3/C4 Splitter Unit
LDAR 2100	F40	Area 2100 – PMA Unit
LDAR LPLT	F41	Light Product Loading Terminal
LDAR Rail LPGU	F42	Railcar LPG Unloading Station
LDAR Truck LPGU	F43	Tank Truck LPG Unloading Station

**EUG 31 Fugitive Equipment Leaks Subject to LDAR Programs  
NSPS, Subpart GGG & NESHAP, Subpart CC (Continued)**

<b>EU</b>	<b>Point</b>	<b>Description</b>
LDAR Rail LPGL	F44	Railcar LPG Loading Station
LDAR Truck LPGL	F45	Tank Truck LPG Loading Station
LDAR Rail Asphalt	F46	Railcar Asphalt Loading Station
LDAR Truck Asphalt	F47	Asphalt Tank Truck Loading Station
LDAR Truck Crude	F48	Tank Truck Crude Oil Unloading Station
LDAR Alkylate	F49	VOC Railcar Loading Station
LDAR Tank farm	F50	Tank Farm Area

**EUG 32 Fugitive Equipment Leaks Subject to  
LDAR Program NSPS, Subpart GGG**

<b>EU</b>	<b>Point</b>	<b>Description</b>
LDAR 150	F51	Area 150 – Hydrogen Unit
LDAR 500	F52	Area 500 - #1 SRU
LDAR 560	F53	Area 560 - #2 SRU
LDAR 580	F54	Area 580 - #2 ARU
LDAR 820	F55	Area 820 - #1 SWS
LDAR 830	F56	Area 830 - #2 SWS
LDAR 860	F57	Area 860 – Instrument Air System

**EUG 33 Wastewater Plant/System<sup>1</sup> QQQ Fugitive Sources  
Subject to NSPS, Subpart QQQ LDAR Program**

<b>EU</b>	<b>Point</b>	<b>Description</b>
QQQ 100 (1 of 4)	F58	Area 100 (1 of 4) – Crude Unit
QQQ 100 (2 of 4)	F59	Area 100 (2 of 4) – Crude Unit MEROX
QQQ 100 (3 of 4)	F60	Area 100 (3 of 4) – Asphalt Blowstill Unit
QQQ 100 (4 of 4)	F61	Area 100 (4 of 4) – Vent Gas Recovery & Compressors
QQQ 150	F62	Area 150 – Hydrogen Unit
QQQ 200	F63	Area 200 – Unsat Gas Unit
QQQ 250	F64	Area 250 – Olefin Unit
QQQ 300	F65	Area 300 – Sat Gas Unit
QQQ 400	F66	Area 400 – NHT & Reforming Unit
QQQ 450	F67	Area 450 – ISOM Unit
QQQ 500	F68	Area 500 - #1 SRU
QQQ 520	F69	Area 520 – SCOT, TGTU & ARU
QQQ 550	F70	Area 550 – Fuel Gas Amine Unit
QQQ 560	F71	Area 560 - #2 SRU
QQQ 570	F72	Area 570 - #2 TGTU
QQQ 580	F73	Area 580 - #1 ARU

<sup>1</sup> - The wastewater system consists of several different sewer systems and the wastewater treatment plant, as described in Section II (Facility Description) above. Various operating units within the Refinery are subject to the requirements of NSPS Subpart QQQ.

**EUG 33 Wastewater Plant/System<sup>1</sup> QQQ Fugitive Sources  
Subject to NSPS, Subpart QQQ LDAR Program (Continued)**

<b>EU</b>	<b>Point</b>	<b>Description</b>
QQQ 600	F74	Area 600 – DHDS Unit
QQQ 650	F75	Area 650 – CFHT Unit
QQQ 670	F76	Area 670 – Hydrocracker/Co-Processor Unit
QQQ 700	F77	Area 700 & 720 – Plant MEROX Unit
QQQ 800	F78	Area 800 – Plant Utilities System & Caustic Unit
QQQ 810	F79	Area 810 – West Flare System
QQQ 820	F80	Area 820 - #1 SWS
QQQ 830	F81	Area 830 - #2 SWS
QQQ 880 (1 of 2)	F82	Area 880 – WWTP
QQQ 880 (2 of 2)	F83	Area 880 – ILS
QQQ 900	F84	Area 900 – Alkylation Unit
QQQ 950	F85	Area 950 – C3/C4 Splitter Unit
QQQ 2100	F86	Area 2100 – PMA Unit
QQQ LPLT	F87	Light Product Loading Terminal
QQQ Tank Farm	F88	Tank Farm
QQQ STG	F89	FCCU Steam Turbine Generators
QQQ WGS	F90	FCCU Flue Gas Scrubber
QQQ WHSE	F91	WHSE Yard
QQQ Bundle Pads	F92	Bundle Pads

<sup>1</sup> - The wastewater system consists of several different sewer systems and the wastewater treatment plant, as described in Section II (Facility Description) above. Various operating units within the Refinery are subject to the requirements of NSPS Subpart QQQ.

**EUG 34 Miscellaneous Process Vents (MPV) Subject to NESHAP, Subpart CC**

<b>EU</b>	<b>Point</b>	<b>MPV Vented to Flares or Other Control Devices</b>
G1 MPV PCV104034A	P88	Vent Gas Compressors [C-10006(A-C)] Suction Pressure Control
G1 MPV PCV104034B	P89	Vent Gas Compressors [C-10006(A-C)] Discharge Drum V-10124 Pressure Control
G1 MPV PCV5417	P90	Light Naphtha Re-contactor (T-113) Pressure Control
G1 MPV HV2527	P91	FCCU Debutanizer (T-205) Pressure Control
G1 MPV PCV824030B	P92	#1 SWS (T-82001) Pressure Control
G1 MPV PCV834051B	P93	#2 SWS (T-83001) Pressure Control
G1 MPV HV9507	P94	Alky Isostripper Receiver (V-903) Pressure Control Through KOH Scrubber (T-901)
G1 MPV PSE94139	P95	Alky CBM Surge Drum (V-923) Pressure Control Through KOH Scrubber (T-901)
G1 MPV HV9501	P96	Alky Depropanizer (V-905) Pressure Control Through KOH Scrubber (T-901)
G1 MPV PCV14071	P97	Crude Unit Fractionator Overhead Receiver (V-120) Pressure Control



**EUG 34 Miscellaneous Process Vents (MPV) Subject to NESHAP, Subpart CC (Cont.)**

<b>EU</b>	<b>Point</b>	<b>MPV Vented to Flares or Other Control Devices</b>
G1 MPV PCV154013	P98	Hydrogen Unit (V-1501 through V-1510) PSA Offgas Pressure Control
G1 MPV PCV154007	P99	Hydrogen Unit Cold Separator (V-15003) Pressure Control
G1 MPV PCV154009	P100	Hydrogen Unit (V-1501 through V-1510) Hydrogen Offgas Pressure Control
G1 MPV PCV2401B	P101	FCCU Feed Surge Drum (V-201) Pressure Control
G1 MPV PV2436	P102	FCCU Fractionator Overhead Receiver (V-203) Pressure Control
G1 MPV PCV3502	P103	Sat Gas DIB Fractionator Overhead Receiver (V-304) Pressure Control
G1 MPV PCV3411B(I)	P104	Sat Gas Debutanizer Feed Surge Drum (V-305) Pressure Control
G1 MPV BV9(I)	P105	CCR Lock Hopper No. 1 (V-418) Purge Control (I)
G1 MPV BV9A(I)	P106	CCR Lock Hopper No. 1 (V-418) Purge Control (II)
G1 MPV BV49(I)	P107	CCR Lock Hopper No. 2 (V-424) Purge Control (I)
G1 MPV BV49A(I)	P108	CCR Lock Hopper No. 2 (V-424) Purge Control (II)
G1 MPV BV49(II)	P109	CCR Vent Drum No. 1 (V-428) Purge Control (I)
G1 MPV BV44(I)	P110	CCR Vent Drum No. 1 (V-428) Purge Control (II)
G1 MPV BV44(II)	P111	CCR Vent Drum No. 2 (V-429) Purge Control
G1 MPV BV4	P112	CCR Vent Drum No. 3 (V-432) Purge Control
G1 MPV BV15	P113	CCR Vent Drum No. 4 (V-433) Purge Control
G1 MPV PCV4438B (I)	P114	NHT Feed Surge Drum (V-439) Pressure Control
G1 MPV V454	P115	ISOM Desiccant Dryers [V-454 (A & B)] Purge Control
G1 MPV PCV5302	P116	#1 SRU Amine Regenerator Overhead Receiver (V-501) Pressure Control
G1 MPV PCV58448	P117	#2 SRU Amine Regenerator Overhead Receiver (V-5802) Pressure Control
G1 MPV PCV6418A	P118	DHDS Feed Surge Drum (V-608) Pressure Control
G1 MPV PCV64235	P119	DHDS Fractionator Overhead Receiver (V-623) Pressure Control
G1 MPV PCV64505	P120	CFHT Fractionator Overhead receiver (V-6511) Pressure Control
G1 MPV PCV6514165	P121	CFHT recycle Gas Cyclone Separator (V-6514) Pressure Control (I)
G1 MPV PCV6514166	P122	CFHT recycle Gas Cyclone Separator (V-6514) Pressure Control (II)
G1 MPV FI32552	P123	MEROX De-Sulfide Settler (V-732) Purge Control
G1 MPV PCV8415B	P124	General Refinery Fuel Gas Drum (V-804) Pressure Control
G1 MPV BV9(II)	P125	Reformer Recycle Gas Coalescer (Z-402) Purge Control (I)
G1 MPV BV9A(II)	P126	Reformer Recycle Gas Coalescer (Z-402) Purge Control (II)
G1 MPV BV49(III)	P127	Reformer Booster Gas Coalescer (Z-404) Purge Control (I)
G1 MPV BV49A(II)	P128	Reformer Booster Gas Coalescer (Z-404) Purge Control (II)

**EUG 34 Miscellaneous Process Vents (MPV) Subject to NESHAP, Subpart CC (Cont.)**

<b>EU</b>	<b>Point</b>	<b>MPV Vented to Flares or Other Control Devices</b>
G1 MPV PCV654585	P129	CFHT Flare Header Fuel Gas Purge Control (I)
G1 MPV PCV654586	P130	CFHT Flare Header Fuel Gas Purge Control (II)
G1 MPV PCV674060	P131	Hydrocracker Flare Header Fuel Gas Purge Control
G1 MPV PCV64719	P132	DHDS High Pressure Drain Drum (V-627) Pressure Control
G1 MPV PCV56463	P133	#2 SRU Hot Oil Heater Surge Drum (V-5604) Fuel Gas Purge Control
G1 MPV PCV2458	P134	FCCU Flare Header Fuel Gas Purge Control
G1 MPV FI58221	P135	#2 ARU Flare Header Fuel Gas Purge Control
G1 MPV FI56209	P136	#2 SRU Flare Header Fuel Gas Purge Control
G1 MPV 3451B(II)	P137	Sat Gas Debutanizer Overhead Receiver (V-301) Pressure Control

**EUG 35 Sources Vented to the Fuel Gas Recovery System (FGRS) & Not Subject to NESHAP, Subpart CC**

<b>EU</b>	<b>Point</b>	<b>Sources Vented to FGRS</b>
G1MPV FE102014	P138	Vacuum Tower Hotwell (V-105)
G1MPV FE102021	P139	Vent Gas Recovery Compressor Discharge Drum (V-10124)
G1MPV V10123	P140	Hotwell Compressor Discharge Drum (V-10123)
G1MPV PCV2451	P141	FCCU Sponge Gas Absorber (T-204)
G1MPV PCV2452B	P142	FCCU Deethanizer Overhead Receiver (V-207)
G1MPV PCV3451	P143	Sat Gas Debutanizer Overhead Receiver (V-301)
G1MPV PCV3408	P144	Sat Gas Deethanizer Overhead Receiver (V-302)
G1MPV PV73	P145	NHT Stripper Overhead Receiver (V-402)
G1MPV PV36A	P146	NHT Stripper Cold Separator (V-436)
G1MPV PV6422	P147	DHDS Low Pressure Receiver (V-602)
G1MPV PV6463	P148	DHDS Stripper Overhead Receiver (V-622)
G1MPV FV652170	P149	CFHT Recycle Gas Amine Contactor Purge (T-6501)
G1MPV PV654410	P150	CFHT Cold Flash Drum (V-6510)
G1MPV PV654490	P151	CFHT Offgas After Cooler Receiver (V-6522)
G1MPV FE832016	P152	#2 SWS Overhead Receiver (V-83001)
G1MPV FE822019	P153	#1 SWS Overhead Receiver (V-82001)
G1MPV PV4434B (II)	P154	NHT Feed Surge Drum (V-439)
G1MPV PV64235	P155	DHDS Fractionator Overhead Receiver (V-623)
G1MPV PV3411A	P156	Sat gas Debutanizer Feed Surge Drum (V-305)
G1MPV PCV55423	P157	MDEA Rich Amine Flash Drum (V-55005)
G1MPV PV245	P158	Reformer Debutanizer Overhead Receiver (V-408)
G1MPV PV1608	P159	Reformer Net Gas Absorber Overhead (T-404)
G1MPV PV45448	P160	ISOM Net Gas Caustic Scrubber Overhead (T-452)
G1MPV PV55401	P161	Amine Unit Offgas Scrubber Overhead (V-553)

**EUG 35 Sources Vented to the Fuel Gas Recovery System (FGRS)  
& Not Subject to NESHAP, Subpart CC (Continued)**

<b>EU</b>	<b>Point</b>	<b>Sources Vented to FGRS</b>
G1MPV PCV154009	P162	PSA Excess Hydrogen (V-1501 through V-1510)
G1MPV PCV9477	P163	PSA Excess Hydrogen (V-1501 through V-1510)
G1MPV PV9447	P164	Propane Scrubber Overhead (V-909 & V-910)
G1MPV PV904321	P165	Dehydrator feed Surge Drum (V-924)
G1MPV PCV8412	P166	Reformer Fuel Gas Drum (V-412)
G1MPV PV14708	P167	Hotwell Compressor Separator (V-10123)
G1MPV PCV152012	P168	PSA Offgas (V-1501 through V-1510)
GII MPV V150004	P169	Hydrogen Unit Deaerator Vent (V-150004)
PMA SCRUB VENT	P170	PMA Unit Storage Tanks Nitrogen Blanket Scrubber Vent
G1MPV PV604121	P171	DHDS Stripper Overhead Receiver Vent #2

**EUG 36 Startup, Shutdown, and Maintenance (SSM) Activities**

The nature of refining operations requires certain activities that are outside normal continuous operations. These activities result in air emissions that exceed the emission rate of normal operations.

<b>Point</b>	<b>Activity</b>
P65	FCCU Startup
P65	FCCU Shutdown
P59	CHFT & Hydrocracker Shutdown
P58	C-104 Shutdown
P58 & P59	Misc. Refinery Unit Start Up
P58 & P59	Misc. Refinery Unit Shut Down
Fugitive	Refinery Turnaround Depressurization (Fugitive)
Fugitive	Tank degassing, changes in service, maintenance

**Insignificant Activities (ISA)**

PMA Unit Polymer Unloading & Storage Silos

Company Vehicle/Equipment Fueling Station

RCRA North Yard Bin Storage Area

DHDS Catalyst Change-Out Area

CFHT Catalyst Change-Out Area

Hydrocracker Catalyst Change-Out Area

SRU Catalyst Change-Out Area

NHT Catalyst Change-Out Area

Reformer Catalyst Change-Out Area

ISOM Catalyst Change-Out Area

East Bundle Pad

West Bundle Pad

Tank Truck Crude Oil Unloading Station

Other sources/equipment meeting definition of ISA in OAC 252:100-8-2

**Storage Vessels that Qualify as Insignificant Activities/Trivial Activities**

<b>EU</b>	<b>Contents</b>	<b>Barrels</b>	<b>Const. Date</b>
T-451	Perchloroethylene	320	1957
T-551	MDEA	91	1991
T-811	Spent Caustic	1,007	1992
T-812	Spent Caustic	1,007	1992
T-813	Spent Caustic	1,007	1992
T-814	Spent Caustic	1,007	1992
T-8803	RCRA Remediation Trench Oil/Water	202	2001
T-8804	RCRA Remediation Trench Oil	202	2001
T-210001	Polymer Asphalt	19	1996
T-210002	10 % H <sub>3</sub> PO <sub>4</sub>	9,517	1996
TK-13005	Fuel Additives	49	1993
TK-13007	Fuel Additives	49	1996
TK-13008	Fuel Additives	49	1996
TK-13009	Fuel Additives	49	1996
V-523	Amine	91	1993
V-815	Wastewater Centrifuge Solids	1,731	1968
V-818	Slop Oil	444	1968
JFP1	Refinery Vehicle Refueling Gasoline	52	1993
JFP2	Refinery Vehicle Refueling Red Dye	11	1993
JFP3	Refinery Vehicle Refueling Diesel (Off-Road)	22	1993

**Trivial Activities (TA)**

South 40 WWTP Ponds

Treated Process Water Pond 002

Treated Process Water Pond 003

Treated Process Water Northwest Pond

Refinery Internal Firefighting Training Area

Maintenance Department Cutting/Grinding/Welding Activities

Chigger Hill Equipment Fabrication and De-Commissioning/Lay Down Yard

Warehouse Yard Bulk-Chemical/Tote/Cylinder/Drum Storage Yard

Light Product Loading Terminal Fuel Additive Storage Totes/Tanks

CFHT Cooling Tower

Alky Cooling Tower

Ceramic Cooling Tower

Steam Turbine Generators Cooling Tower

Aerosol Can Disposal Station

Gasoline blender QA/QC operations

QA/QC Laboratories

Land Treatment Unit

Other approved sources meeting definition of TA in OAC 252:100-8-2

**SECTION IV. EMISSIONS**

The implementation of NSPS and OAC 252:100 new source review (NSR) standards in conjunction with PSD standards has resulted in a significant reduction of the emissions of criteria pollutants at the refinery. The quantification of these emissions and the assumptions utilized are discussed in detail in this section. Emissions from the facility were based on an extensive assessment of the modifications to the refinery, the applicable standards, and the equipment involved. Emission statements are not exactly conclusive in presentation; yet they represent the approximate quantification(s). As technology developed through the timeframe as provided, actual and potential emissions became dependent on updating emission factors in the absence of continuous monitoring systems. Historical emission estimates are not conclusive, or exact, yet are an estimate based on the attempt to quantify changes associated with modifications occurring within a time-frame as indicated to reflect upon the net emissions potential decreases established by NSPS, NSR, and BACT applications. This permit will supercede any conditions of the previous permits that affect the EU incorporated into this permit.

Individual source emissions are provided below for the purpose of identifying their contribution to the facility wide VOC cap that will be established for the tanks.

**EUG 1 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-1018	F1	Alkylate& Gasoline	9,490,000	2.800	0.52
T-1019	F2	Alkylate& Gasoline	2,555,000	RVP 15	14.30
T-1082	F3	Crude Oil	36,500,000	RVP 5	11.26
T-1083	F4				
T-1084	F5				
T-1115	F6	Gasoline	11,205,500	RVP 10.5	6.29
T-1116	F7	Gasoline	9,510,400	RVP 10.5	6.29
T-1123	F8	Gasoline	2,735,640	RVP 10.5	9.14
T-1124	F9	Gasoline	4,920,856	RVP 10.5	9.66
T-1125	F10	Gasoline	7,500,000	RVP 10.5	12.00
T-1126	F11	Gasoline	7,500,000	RVP 10.5	12.00
T-1130	F12	FCCU Gasoline	10,402,500	RVP 15	26.76
T-1131	F13	FCCU Gasoline	12,514,286	11.00	9.24
T-1132	F14	Reformate	12,514,286	11.00	7.83
<b>Total</b>					<b>125.29</b>

**EUG 2 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-1008	P1	LCO Slurry	2,275,243	0.150	5.08
T-1085	P2	Slurry/Fuel Oil #6	447,964	0.0002	0.01
T-1113	P3	Asphalt	1,200,548	0.014	1.62
T-1121	P4	Diesel/Kerosene	1,190,974	0.008	0.63
T-1127	P5	Diesel/Kerosene	3,300,000	0.008	1.56
T-1128	P6	Diesel/Kerosene	3,300,000	0.008	1.56
T-1129	P7	Diesel/Kerosene	61,264	0.008	0.03
TK-13006	P8	Fuel Additive	100,000	0.014	0.01
<b>Total</b>					<b>10.50</b>

**EUG 3 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-1155	F15	Naphtha/Diesel	12,045,000	1.322	3.13

**EUG 4 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-1152	F18	Sour Water	2,131,286	0.349	0.31

**EUG 5 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-153	P9	FCCU Charge	10,950,222	0.002	1.75
T-156	P10	FCCU Slurry	442,319	0.028	0.98
T-1141	P11	Diesel/Kerosene	3,578,477	0.080	1.91
T-1142	P12	Diesel/Kerosene	2,391,914	0.080	1.27
T-5801	P13	Amine	10,667,000	0.002	0.40
<b>Total</b>					<b>6.31</b>

**EUG 6 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-1102	P14	Asphalt	1,100,000	0.014	1.50
T-1111	P15	Asphalt	506,757	0.014	0.69
T-1118	P16	Asphalt	733,674	0.014	0.99
T-1135	P17	PMA Asphalt	4,424	1.322	0.24
T-1151	P18	Asphalt	1,893,114	0.014	2.56
T-100149	P19	Asphalt Flux	1,400,000	0.135	1.77
T-100150	P20	Asphalt Base	2,800,000	0.135	2.08
T-210003	P21	Asphalt Flux	1,398,970	0.041	1.33
T-210004	P22	PMA Rxn	2,100,000	0.041	2.24
T-210005	P23	PMA Rxn	2,100,000	0.041	2.24
T-210006	P24	PMA	1,400,000	0.041	2.21
T-210007	P25	PMA	1,400,000	0.041	2.21
T-210008	P26	PMA	1,400,000	0.041	2.44
<b>Total</b>					<b>22.50</b>

**EUG 7 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
V-8801	F16	Wastewater	9,560,914	RVP 4.5	7.34
V-8802	F17	Wastewater	9,560,914	RVP 4.5	7.34
<b>Total</b>					<b>14.68</b>

**EUG 8 VOC Emissions**

			<b>Throughput</b>	<b>VP</b>	<b>Emissions</b>
<b>EU</b>	<b>Point</b>	<b>Contents</b>	<b>BPY</b>	<b>psia</b>	<b>TPY</b>
T-83001	P27	Sour Water	2,565,575	0.010	4.79

### Emissions from the EUG 9

The emissions from T-5602 are vented to the SRU incinerator (EUG 16) and are incorporated into that limit as SO<sub>2</sub>. Potential emissions are based on a H<sub>2</sub>S concentration of 8,000 ppmv (based on historical analyses of sulfur pit sweep vapors ~2,000 ppmv plus a safety factor of four), the density of molten sulfur (124.8 lb/CF) and a run-down rate of 12,100 lb/hr of molten sulfur (130 LTD).

### Emissions from EUG 10

EU	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
B-801 <sup>1</sup>	9.24	31.13	7.76	26.15	0.70	2.37	2.43	10.66	0.51	1.71
B-802 <sup>1</sup>	11.45	38.56	9.61	32.39	0.87	2.93	3.01	13.20	0.63	2.12
B-803 <sup>1</sup>	11.06	37.27	9.29	31.31	0.84	2.83	2.91	12.76	0.61	2.05
H-103 <sup>1</sup>	24.85	83.71	10.98	37.01	0.99	3.35	3.44	15.08	0.72	2.42
H-201 <sup>1</sup>	28.26	95.21	12.49	42.09	1.13	3.81	3.92	17.16	0.82	2.76
H-403 <sup>1</sup>	12.58	42.38	10.57	35.60	0.96	3.22	3.31	14.51	0.69	2.33
H-404/5 <sup>1</sup>	12.66	42.64	10.63	35.82	0.96	3.24	3.34	14.61	0.70	2.35
H-601 <sup>1</sup>	7.46	25.12	6.26	21.10	0.57	1.91	1.96	8.60	0.41	1.38
H-102A <sup>2</sup>	7.20	31.54	17.13	57.71	1.55	8.51	5.37	23.52	1.12	3.78
H-102B <sup>2</sup>	7.97	34.90	14.45	48.70	1.31	7.19	4.53	19.85	0.95	3.19
H-603 <sup>2</sup>	8.28	36.28	5.21	22.81	1.22	4.10	4.21	18.45	0.88	2.96
H-6501 <sup>2</sup>	5.53	24.20	3.72	16.29	0.89	3.01	3.09	13.54	0.65	2.18
H-6502 <sup>2</sup>	3.26	14.27	2.19	9.61	0.53	1.77	1.82	7.98	0.38	1.28
H-15001 <sup>2</sup>	19.61	85.88	9.80	42.94	3.17	10.67	10.97	48.05	2.29	7.72
<b>Totals</b>	<b>169.4</b>	<b>623.1</b>	<b>130.1</b>	<b>459.5</b>	<b>15.69</b>	<b>58.91</b>	<b>54.31</b>	<b>238.0</b>	<b>11.36</b>	<b>38.23</b>

<sup>1</sup> - Emissions are based on the heat input ratings HHV (MMBTUH) and the following emission factors:

NO<sub>x</sub>, CO, PM<sub>10</sub>, & VOC - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr); for heaters rated greater than 100 MMBTUH (H-103 and H-201) the uncontrolled post-NSPS NO<sub>x</sub> emission factors plus 30% for the short term emission rates (lb/hr) are used; and  
 SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).

<sup>2</sup> - Emissions are based on the heat input ratings HHV (MMBTUH) and the following emission factors:

NO<sub>x</sub> emissions are based on the following: H-102A - 0.045 lb/MMBTU, H-102B - 0.059 lb/MMBTU, H-603 - 0.066 lb/MMBTU, and H-6501, H-6502, and H-15001 - 0.06 lb/MMBTU;  
 CO - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr); except for H-603, H-6501, H-6502, and H-15001 which are based on the following: 0.0415, 0.0404, 0.0404, and 0.03 lb/MMBTU, respectively;  
 PM<sub>10</sub>, & VOC - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr); and  
 SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).



**Emissions from EUG 11**

	<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>10</sub></b>		<b>SO<sub>2</sub></b>		<b>VOC</b>	
<b>EU</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
H-101	3.93	13.23	3.30	11.11	0.30	1.01	1.03	4.53	0.22	0.73
H-301	2.75	9.28	2.31	7.79	0.21	0.71	0.73	3.18	0.15	0.51
H-401B	1.89	6.36	1.58	5.34	0.14	0.48	0.50	2.18	0.10	0.35
H-406	3.57	12.02	3.00	10.10	0.27	0.91	0.93	4.12	0.20	0.66
H-407	3.19	10.74	2.68	9.02	0.24	0.82	0.84	3.68	0.18	0.59
H-411	3.57	12.02	3.00	10.10	0.27	0.91	0.92	4.05	0.20	0.66
<b>Totals</b>	<b>18.90</b>	<b>63.65</b>	<b>15.87</b>	<b>53.46</b>	<b>1.43</b>	<b>4.84</b>	<b>4.95</b>	<b>21.74</b>	<b>1.05</b>	<b>3.50</b>

Emissions are based on the heat input ratings HHV (MMBTUH) and the following emission factors:

NO<sub>x</sub>, CO, PM<sub>10</sub>, & VOC - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr); and

SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).

**Emissions from EUG 12**

	<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>10</sub></b>		<b>SO<sub>2</sub></b>		<b>VOC</b>	
<b>EU</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
H-401A	2.04	6.87	1.71	5.77	0.16	0.52	0.54	2.35	0.11	0.38
H-402A	1.77	5.97	1.49	5.01	0.13	0.45	0.47	2.04	0.10	0.33
H-402B	2.01	6.79	1.69	5.70	0.15	0.52	0.53	2.32	0.11	0.37
H-901	7.65	25.76	6.42	21.64	0.58	1.96	2.01	8.82	0.42	1.42
H-1016	0.61	2.06	0.51	1.73	0.05	0.16	0.16	0.71	0.03	0.11
<b>Totals</b>	<b>14.08</b>	<b>47.45</b>	<b>11.82</b>	<b>39.85</b>	<b>1.07</b>	<b>3.61</b>	<b>3.71</b>	<b>16.24</b>	<b>0.77</b>	<b>2.61</b>

Emissions are based on the heat input ratings HHV (MMBTUH) and the following emission factors:

NO<sub>x</sub>, CO, PM<sub>10</sub>, & VOC - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr); and

SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).

**Emissions from EUG 13**

	<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>10</sub></b>		<b>SO<sub>2</sub></b>		<b>VOC</b>	
<b>EU</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
H-100024	0.86	2.96	1.45	4.87	0.13	0.44	0.45	1.98	0.09	0.32
H-210001	1.55	5.24	1.31	4.40	0.12	0.40	0.08	0.35	0.09	0.29
<b>Totals</b>	<b>2.41</b>	<b>8.20</b>	<b>2.76</b>	<b>9.27</b>	<b>0.25</b>	<b>0.84</b>	<b>0.53</b>	<b>2.33</b>	<b>0.18</b>	<b>0.61</b>

Emissions are based on the heat input ratings HHV (MMBTUH) and the following emission factors:

NO<sub>x</sub>, CO, PM<sub>10</sub>, & VOC - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr); and

SO<sub>2</sub> - For H-100024, a fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU); and For H-210001, a fuel-gas H<sub>2</sub>S concentration of 0.025 grains/DSCF and a HHV of 1,020 BTU/SCF (0.0066 lb/MMBTU) was used.

**Emissions from EUG 14**

	<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>10</sub></b>		<b>SO<sub>2</sub></b>		<b>VOC</b>	
<b>Heaters</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
H-5602	0.98	4.29	2.14	7.21	0.19	0.65	0.67	2.94	0.14	0.47
H-6701	0.71	3.10	1.26	4.26	0.11	0.39	0.40	1.74	0.08	0.28
<b>Totals</b>	<b>1.69</b>	<b>7.39</b>	<b>2.62</b>	<b>11.47</b>	<b>0.24</b>	<b>1.04</b>	<b>1.07</b>	<b>4.68</b>	<b>0.17</b>	<b>0.75</b>

Emissions are based on the heat input ratings HHV (MMBTUH) and the following emission factors:

NO<sub>x</sub> emissions are based on the following: H-5602 - 0.050 lb/MMBTU and H-6701 - 0.06 lb/MMBTU; and CO, PM<sub>10</sub>, & VOC - AP-42, Section 1.4 (7/98) emissions factors plus 30% for the short term emission rates (lb/hr);

SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).

**Emissions from the EUG 15/22**

	<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>10</sub></b>		<b>SO<sub>2</sub></b>		<b>VOC</b>	
<b>Point</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
P57	20.40	8.04	111.0	43.76	2.80	1.10	10.08	3.97	42.0	16.56
P72										
P58	20.40	8.34	111.0	45.38	2.80	0.91	10.08	4.12	42.0	17.17
P59										
<b>Totals</b>	<b>40.80</b>	<b>16.38</b>	<b>222.0</b>	<b>89.14</b>	<b>5.60</b>	<b>2.01</b>	<b>20.16</b>	<b>8.09</b>	<b>84.00</b>	<b>33.73</b>

TPY emissions from the Crude Unit Flare (East Flare – P57) and Platformer/Alkylation Unit Flare (West Flare – P58), are based on heat ratings of 27 MMBTUH and 28 MMBTUH, respectively and the following:

NO<sub>x</sub>, CO, & VOC - AP-42, Section 13.5 (1/95);

PM<sub>10</sub> - AP-42, Section 1.4 (7/98); and

SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).

Short-term emission (lb/hr) are based on the systems design and steam availability of ~ 300 MMBTUH for smokeless operation.

P59 operates in lieu of P58 and therefore does not increase the emissions totals.

P72 (EUG 22) operates in lieu of P57 and therefore does not increase the emissions totals.

**Emissions from EUG 16 & 24**

	<b>NO<sub>x</sub></b>		<b>CO</b>		<b>PM<sub>10</sub></b>		<b>SO<sub>2</sub></b>		<b>VOC</b>	
<b>EU</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>	<b>lb/hr</b>	<b>TPY</b>
HI-501	1.94	8.50	1.09	4.76	0.43	1.88	11.98	52.47	0.07	0.31
HI-5602	3.96	17.35	3.33	14.57	0.30	1.32	26.2	114.7	0.20	1.00
<b>Totals</b>	<b>5.90</b>	<b>25.85</b>	<b>4.42</b>	<b>19.33</b>	<b>0.73</b>	<b>3.20</b>	<b>38.18</b>	<b>167.2</b>	<b>0.27</b>	<b>1.31</b>

Emissions from HI-501 are based on combustion of 8.2 MMBTUH of auxiliary fuel, combustion of 217,512

SCFH of waste gas with a heat content of 23 BTU/SCF, and the following:

NO<sub>x</sub>, CO, PM<sub>10</sub>, VOC - AP-42, Section 1.4 (7/98); NO<sub>x</sub> emissions include a safety factor of 1.5 and PM<sub>10</sub> emissions have been adjusted for emissions of H<sub>2</sub>SO<sub>4</sub>; and

SO<sub>2</sub> - NSPS, Subpart J, SO<sub>2</sub> emission limit of 250 ppmdv and a flow rate of 288,212 DSCFH @ 0% O<sub>2</sub>; approximately 1.8% of SO<sub>2</sub> emissions will be emitted as SO<sub>3</sub> and converted to H<sub>2</sub>SO<sub>4</sub>.

The emissions from the # 1 sulfur pit (EU SSP-520) are vented to HI-501.  
 Emissions from HI-5602 are based on combustion of 27.7 MMBTUH of auxiliary fuel, combustion of 552,396 SCFH of waste gas with a heat content of 23 BTU/SCF, and the following:  
 NO<sub>x</sub>, CO, PM<sub>10</sub>, VOC - AP-42, Section 1.4 (7/98); and  
 SO<sub>2</sub> - NSPS, Subpart J, SO<sub>2</sub> emission limit of 250 ppmvd and a flow rate of 630,000 DSCFH @ 0% O<sub>2</sub>; approximately 1.8% of SO<sub>2</sub> emissions will be emitted as SO<sub>3</sub> and converted to H<sub>2</sub>SO<sub>4</sub>.  
 The emissions from the # 2 sulfur storage tank (TK-5602) are vented to this control device.

#### Emissions from EUG 17

	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
HI-801	9.37	41.05	6.67	22.47	1.14	3.84	8.00	35.03	0.44	1.47

Potential emissions from the Asphalt Blowstill are based on the following:

NO<sub>x</sub> - For emissions from combustion of the auxiliary fuel, emissions were based on a heat rating of 12 MMBTUH and the emission factor from AP-42, Section 1.4 (7/98) multiplied by 1.5; for emissions from combustion of the waste gas, emissions were based on a flow rate of 21,287 lb/hr of waste gas, a heat content of 2,363 BTU/lb, and the emission factor from AP-42, Section 1.4 (7/98) multiplied by 1.5; for emissions from nitrogen in the waste gas (as NO<sub>2</sub>), emissions were based on a concentration of 6.2 ppmvd and a flow rate of 282,823 SCFH; Short term emission rates (lb/hr) were then increased by a 30% safety factor;  
 CO & VOC, & PM<sub>10</sub> - For emissions from combustion of the auxiliary fuel, emissions were based on a heat rating of 12 MMBTUH and AP-42, Section 1.4 (7/98); for emissions from combustion of the waste gas, emissions were based on a flow rate of 21,287 lb/hr of waste gas, a heat rating of 2,363 BTU/lb, and AP-42, Section 1.4 (7/98); emissions of PM<sub>10</sub> have been adjusted for emissions of H<sub>2</sub>SO<sub>4</sub>; Short term emission rates (lb/hr) were then increased by a 30% safety factor; and  
 SO<sub>2</sub> - A refinery fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF, a flow rate of 0.016 MMSCFH of auxiliary fuel, and a flow rate of 0.283 MMSCFH of waste gas; approximately 1.8% of SO<sub>2</sub> emissions will be emitted as SO<sub>3</sub> and converted to H<sub>2</sub>SO<sub>4</sub>.

#### Emissions from the EUG 18

	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
LPLT	5.20	15.79	13.00	39.48	0.00	0.00	0.01	0.01	30.16	73.66

VOC emissions from the vapor combustor are based on loading 22,525,714 bbl/yr and 155,782 gal/hr of gasoline and diesel, a limit of 10 mg VOC/L gasoline loaded, and a collection efficiency of 99.2%. Annual loading losses were based on loading 22,525,714 bbl/yr of gasoline, AP-42 (1/95), Section 5.2, a saturation factor of 1.0, a vapor pressure (vp) of 5.8 psia, a temperature of 60 °F, a vapor molecular weight of 65, and a 99.2% collection efficiency. Hourly loading losses were based on loading 155,782 gallons per hour (gph) of gasoline, AP-42 (1/95), Section 5.2, a saturation factor of 1.0, a maximum vp of 9.4 psia, a maximum temperature of 93 °F, a vapor molecular weight of 65, and a 99.2% collection efficiency. NO<sub>x</sub>, CO, and SO<sub>2</sub> emissions from the vapor combustor are based on the following emission factors:

NO<sub>x</sub> - 4 mg/L of gasoline loaded (0.03338 lb/Mgal);  
 CO - 10 mg/L of gasoline loaded (0.08345 lb/Mgal); and  
 SO<sub>2</sub> - Combustion of 2,000 gallons of distillate fuel oil and a factor of 7.1 lb/Mgal.

### Emissions from the FCCU (EUG 19) as Evaluated in the BACT Submittal

The table below shows the emissions as they were evaluated in the proposed and accepted BACT submittal. The baseline emissions and the proposed BACT limits do not include the FCCU feedstock pre-heater.

	TPY NO <sub>x</sub>	TPY CO	TPY PM <sub>10</sub>	TPY SO <sub>2</sub>
<b>Baseline Emissions<sup>1</sup></b>	473.1	229.1	466.4	2,024.7
<b>BACT Emission Limits<sup>2</sup></b>	356.8	182.7	46.6	202.4
<b>Emission Reductions</b>	<b>116.3</b>	<b>46.4</b>	<b>419.8</b>	<b>1,822.3</b>

<sup>1</sup> Baseline emissions for the FCCU are based on the following:

**NO<sub>x</sub> Emissions:**

NO<sub>x</sub> emissions from the FCCU No. 1 Regenerator were based on stack test results (65.34 lb/hr) conducted on January 22-23, 1998, and extrapolated from a feedstock rate of 25,836 bbl/day to 30,000 bbl/day. NO<sub>x</sub> emissions from the FCCU No. 2 Regenerator were based on stack test results (27.69 lb/hr) conducted on January 22-23, 1998, and extrapolated from a feedstock rate of 25,836 bbl/day to 30,000 bbl/day.

**CO Emissions:**

CO emissions from the FCCU No. 1 Regenerator were based on an average of stack test results (89.28, 16.96, 26.49 lb/hr) conducted on January 22-23, 1998, August 9, 1999, and August 12, 1999, and extrapolated from feedstock rates of 25,836, and 22,050, 26,322 bbl/day, respectively, to 30,000 bbl/day. CO emissions from the FCCU No. 2 Regenerator were based on the detection limit for CO based on stack test results conducted on January 22-23, 1998.

**PM<sub>10</sub> Emissions:**

PM<sub>10</sub> emissions from the FCCU No. 1 Regenerator were based on stack test results (52.56 lb/hr) conducted on August 12 1999, and extrapolated from a feedstock rate of 26,322 bbl/day to 30,000 bbl/day. PM<sub>10</sub> emissions from the FCCU No. 2 Regenerator were based on stack test results (40.87 lb/hr) conducted on August 12, 1999, and extrapolated from a feedstock rate of 26,322 bbl/day to 30,000 bbl/day.

**SO<sub>2</sub> Emissions:**

SO<sub>2</sub> emissions from the FCCU No. 1 Regenerator were based on stack test results (246.18 lb/hr) conducted on January 22-23, 1998, and extrapolated from a feedstock rate of 25,836 bbl/day and a feedstock sulfur content of 0.2733% by weight to 30,000 bbl/day and a feedstock sulfur content of 0.3% by weight. NO<sub>x</sub> emissions from the FCCU No. 2 Regenerator were based on stack test results (112.35 lb/hr), which was conducted on August 12, 1999, extrapolated from a feedstock rate of 26,322 bbl/day and a feedstock sulfur content of 0.2587% by weight to 30,000 bbl/day and a feedstock sulfur content of 0.3% by weight.

<sup>2</sup> BACT emission limits for the FCCU are based on the following:

**NO<sub>x</sub> Emissions:**

NO<sub>x</sub> emissions from the FCCU No. 1 Regenerator were based on a 35% reduction of baseline emissions. NO<sub>x</sub> emissions from the FCCU No. 2 Regenerator were based on the baseline emission estimates.

**CO Emissions:**

CO emissions from the FCCU No. 1 Regenerator were based on a flow rate of 46,018 SCFM and a concentration of 175 ppmv @ 0% O<sub>2</sub>. CO emissions from the FCCU No. 2 Regenerator were based on 30,221 SCFM and a concentration of 50 ppmv @ 0% O<sub>2</sub>. The total reductions are approximately 20% of the baseline emissions.

**PM<sub>10</sub> Emissions:**

PM<sub>10</sub> emissions from the FCCU No. 1 and No. 2 Regenerators were based on a 90% reduction of baseline emissions (front-half).

**SO<sub>2</sub> Emissions:**

SO<sub>2</sub> emissions from the FCCU No. 1 and No. 2 Regenerators were based on a 90% reduction of baseline emissions.

### Emissions from the FCCU (EUG 19) After Application of CO Boiler SEP

The table below shows the emissions as the emissions from the FCCU after application of the proposed and accepted supplemental environmental project of replacing the existing FCCU No. 1 Regenerator CO Boiler/Incinerator with a larger CO Boiler that would be able to handle the total flow of the FCCU No. 1 Regenerator.

	TPY NO <sub>x</sub>	TPY CO	TPY PM <sub>10</sub>	TPY SO <sub>2</sub>
<b>BACT Emission Limits</b>	356.8	182.7	46.6	202.4
<b>SEP Emission Estimates<sup>1</sup></b>	307.0	182.7	46.6	202.4
<b>Emission Reductions</b>	<b>49.8</b>	<b>0.0</b>	<b>0.0</b>	<b>0.0</b>

<sup>1</sup> SEP emissions estimates remain the same as the BACT emission limits for the FCCU, except for NO<sub>x</sub> emissions, which are based on an additional 15% reduction of the FCCU No. 1 BACT emission limits. NO<sub>x</sub> emissions from the FCCU No. 2 Regenerator remained the same.

### Emissions From The New Boiler/CO Boiler (EUG 20) Project

The new boiler/CO boiler (B-254) is equipped with LNB (0.06 lb NO<sub>x</sub>/MMBTUH). The primary design basis for the boiler is firing 100% refinery fuel-gas. The secondary design basis is firing all of the FCCU No. 1 Regenerator flue-gas in combination with refinery fuel-gas. The table below summarizes emissions for criteria pollutants for the CO boiler operation. The emissions shown below only represent the emissions arising from operation of the boiler itself and not the criteria pollutant emissions processed through the boiler. The existing CO boiler has been removed from service.

NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
8.64	37.84	11.86	51.94	1.07	4.70	4.84	21.19	0.78	3.40

Emissions are based on a heat input rating of 144 MMBTUH and the following:

NO<sub>x</sub> - manufacturers guarantee of 0.06 lb/MMBTU;

CO, VOC, & PM<sub>10</sub> - AP-42, Section 1.4 (7/98); and

SO<sub>2</sub> - A fuel-gas H<sub>2</sub>S concentration of 0.1 grain/DSCF and a HHV of 800 BTU/SCF (0.0336 lb/MMBTU).

### Emissions from EUG 26

	PM <sub>10</sub>	
EU	lb/hr	TPY
cat_hop	0.46	2.01

Potential emissions from the catalyst hoppers are based on the flow rate and factors for spent and fresh catalyst. Emissions due to spent catalyst are based on a continuous catalyst recirculation rate of approximately 1,050 Tons/hr through two hoppers and an emission factor of 0.01 lbs PM/ton (AP-42, Section 11.24 (1/95), Table 11.24.2, high moisture ore, material handling and transfer - all minerals except bauxite); and emissions due to fresh catalyst are based on a continuous catalyst recirculation rate of 13 tons/hr, an emission factor of 0.12 lbs PM/ton (AP-42, Section 11.24 (1/95), Table 11.24.2, low moisture ore, material handling and transfer - all minerals except bauxite), and continuous operation. PM<sub>10</sub> emissions for the high moisture ore are 40% of PM emissions. PM<sub>10</sub> emissions for the low moisture ore are 50% of PM emissions. The high moisture ore factor was utilized for the spent catalyst since live steam is injected to control emissions of PM. The emissions from the catalyst hoppers are vented to a cyclone with an efficiency of 70% for PM and 50% for PM<sub>10</sub>. The cyclones are vented to the FCCU wet scrubber with an efficiency of 93.3% for PM and 90% for PM<sub>10</sub>.

**Allowable Emissions from EUG 19, 20, & 26**

NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
118.0	344.8	178.1	234.7	22.83	53.35	66.44	223.6	0.78	3.40

Allowable emissions are the combination of the BACT allowables plus the new Boiler/CO Boiler allowables plus the catalyst hopper allowables.

**Emissions from EUG 21**

	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
EEQ-8801	28.80	11.52	7.65	3.06	0.52	0.21	0.45	0.18	0.74	0.29
EEQ-80001	9.16	3.66	1.97	0.79	0.64	0.26	0.10	0.04	0.75	0.30
EWCP-1	19.20	0.54	4.40	0.12	0.56	0.02	0.32	0.01	0.51	0.01
EWCP-2	19.20	0.54	4.40	0.12	0.56	0.02	0.32	0.01	0.51	0.01
EWCP-3	19.20	0.54	4.40	0.12	0.56	0.02	0.32	0.01	0.51	0.01
<b>Totals</b>	<b>95.56</b>	<b>16.80</b>	<b>22.82</b>	<b>4.21</b>	<b>2.84</b>	<b>0.53</b>	<b>1.51</b>	<b>0.25</b>	<b>3.02</b>	<b>0.62</b>

Emissions from the diesel fired engines are based on the following operating hours and ratings: EEQ-8801 - 800 hours and 9.00 MMBTUH; EEQ-80001 - 800 hours and 2.08 MMBTUH; and EWCP-1 through 3 - 56 hours and 4.69 MMBTUH; and the following emission factors:

NO<sub>x</sub>, CO, & PM<sub>10</sub>, VOC - AP-42, Section 3.3, (10/96) for EEQ-80001 and AP-42, Section 3.4, (10/96) for EEQ-8801 and EWCP-1 through EWCP-3; and  
SO<sub>2</sub> - AP-42, Section 3.4, (10/96) and a maximum sulfur content of 0.05% by weight.

**Emissions from EUG 23**

	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
C-80018	13.95	27.90	3.01	6.01	0.99	1.98	0.18	0.36	1.13	2.26

Emissions from the diesel fired engine are based on the following operating hours and ratings: C-80018 - 4,000 hours and 450-hp; and the following emission factors:

NO<sub>x</sub>, CO, & PM<sub>10</sub>, VOC - AP-42, Section 3.3, (10/96) for C-80018; and  
SO<sub>2</sub> - AP-42, Section 3.4, (10/96) and a maximum sulfur content of 0.05% by weight.

**Emissions from EUG 25**

	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
CCR	1.19	5.21	0.44	1.93	0.56	2.46	0.67	2.91	0.05	0.20

Emissions are based on a coke-burning rate of 70 lbs/hr, which is equivalent to a maximum catalyst recirculation rate of 1,000 lb/hr and a coke generation rate of 7% of the catalyst weight, with a coke maximum sulfur content of 0.5% by weight. Coke combustion emissions were based on AP-42 (1/95), Section 1.1, for sub-bituminous coal combustion. PM<sub>10</sub> emissions also include a recovery factor for the catalyst of 99.99%.

NO<sub>x</sub> - 34 lb/ton of coke combusted (Pulverized coal fired, wet bottom);  
CO - a concentration of 500 ppmv @ 0% O<sub>2</sub> and a flow rate of 200 DSCFM;  
PM<sub>10</sub> - 13.2 lb/ton of coke combusted (Spreader Stoker); 0.46 lb/hr combustion & 0.10 lb/hr catalyst;  
SO<sub>2</sub> - 38 x (Sulfur Content) lb/ton of coke combusted (Spreader Stoker); and  
VOC - 1.3 lb/ton of coke combusted (Underfeed Stoker).

### HCl Emissions from EUG 25

	Uncontrolled		Controlled	
	lb/hr	TPY	lb/hr	TPY
<b>HCl Emissions</b>	10.10	44.23	0.30	1.33

Ethylene dichloride ( $C_2H_4Cl_2$ ) or perchloroethylene ( $Cl_2C:CCl_2$ ) is injected into the reformer and then discharged as hydrogen chloride (HCl). The facility is required to comply with the MACT (97% control of HCl from the CCR or 10 ppmv HCl @ 3%  $O_2$ ). Ethylene dichloride or perchloroethylene is almost completely destroyed by reaction with the catalyst and air. Estimated material usage is based on 0.0106 lb of perchloroethylene per barrel with the CCR running at 26 MBPD. Potential HCl emissions are based on 100% of the chloride being converted to HCl and being emitted from the CCR. Emissions of HCl from the CCR after control are estimated using the required control efficiency of 97%. The controls for HCl will also help reduce  $PM_{10}$  emissions by approximately 95%.

### Emissions from EUG 27

	$NO_x$		CO		$PM_{10}$		$SO_2$		VOC	
Point	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
HI-8801	8.87	38.87	1.31	5.74	0.12	0.52	5.82	25.49	2.18	9.56

Emissions from the WWTP Incinerator are based on the following:

$NO_x$  - a maximum concentration of 315 ppmv  $NH_3$  in the bioreactor off-gases, a waste gas flow rate of 198,000 SCFH, and a 95.0% combustion efficiency plus an emission factor of 0.12 lb/MMBTU and a heat rate of 15 MMBTUH;

CO &  $PM_{10}$  - a heat rate of 15.9 MMBTUH, and AP-42, Section 1.4 (7/98);

$SO_2$  - a maximum concentration of 0.1 grain/DSCF  $H_2S$  in the bioreactor off-gases, a flow rate of 198,000 SCFH, a 95.0% combustion efficiency and an auxiliary fuel flow rate of 15 MMTBUH @ 800 BTU/SCF HHV; and

VOC - a waste gas flow rate of 42.05 lb/hr and a combustion efficiency of 95% and a heat rate of 15 MMBTUH and AP-42, Section 1.4 (7/98).

### Emissions from EUG 28

	$NO_x$		CO		$PM_{10}$		$SO_2$		VOC	
Point	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
P84	0.10	0.12	0.54	0.63	0.01	0.01	----	----	1.10	1.29

Potential emissions are based on a short-term throughput of 220 gallons per minute, an annual throughput of 733,505 bbl/yr, and the following:

$NO_x$  & CO - the emission factors from AP-42, Section 13.5 (1/95), and a heat rating of 130,000 BTU/gallon;

VOC - the allowable emission factor from NESHAP, Subpart R of 10 mg/L (0.0835 lb/1,000 gallon).

The railcar loading station will be vented through the asphalt blowstill and will be added to the emission limits for the asphalt blowstill thermal oxidizer.

### VOC Emissions from EUG 29

	Throughput	Emissions
Station (EU)	BPY	TPY
Railcar Loading (LPG)	857,513	14.7
Tank Truck Loading (LPG)	599,603	13.3
Unloading (LPG)	642,515	6.5

Potential VOC emissions from LPG loading are based on an emission factor of 3.74 lb VOC/disconnect except for loading of propane into tank trucks where a factor of 13.5 lb/disconnect was used.

**VOC Emissions from EUG 30**

	<b>Throughput</b>	<b>Emissions</b>
<b>Loading Station (EU)</b>	<b>BPY</b>	<b>TPY</b>
Railcar (ASPHALT-RC-LOAD)	4,745,000	16.69
Tank Truck (ASPHALT-TT-LOAD)		

The emissions are based on AP-42 (1/95), Section 5.2 and the listed throughputs.

**VOC Emissions from EUG 31**

<b>Number Items<sup>3</sup></b>	<b>Type of Equipment</b>	<b>Factor (kg/hr/source)</b>	<b>Emissions (TPY)</b>
18,145	Gas/ Light-Liquid Valves	0.00221 <sup>1</sup>	387.22
102	Pressure Relief Valves <sup>2</sup>	0.16000	3.15
76	Pressure Relief Valves	0.16000	117.42
259	Connectors	0.00025	0.63
32,729	Gas/Light-Liquid Flanges	0.00025	79.01
42	Compressor Seals <sup>2</sup>	0.63600	5.16
594	Light-Liquid Pump Seals	0.01385	79.44
465	Other	0.00865	38.84
7,946	Heavy-Liquid Valves	0.00023	17.64
21,482	Heavy-Liquid Flanges	0.00025	51.86
119	Heavy-Liquid Pump Seals	0.02100	24.10
<b>Total</b>			<b>804.47</b>

Fugitive VOC emissions are based on the factors below derived from EPA's 1995 *Protocol for Equipment Leak Emission Estimates* (EPA-453/R-95-017), and an estimated number of components.

- <sup>1</sup> – This factor is equivalent to an overall control efficiency for valves of approximately 62 to 70% from the average refinery emissions factors.
- <sup>2</sup> – Potential emissions are controlled at 98%.
- <sup>3</sup> – Based on estimated current source counts.

**EUG 32/33 Wastewater Fugitive Equipment Leaks**

Emissions from wastewater fugitive equipment leaks were estimated based on the number of equipment items multiplied by a standard emission factor (0.032 kg/hr/source) and are estimated at 154.3 TPY. Implementation of Title 40 CFR Part 60, Subpart QQQ, reduces emissions to a certain degree, but the extent is minute compared to the end-of-line release from aerated biological reactors. The effectiveness of Subpart QQQ provides a greater reduction of VOC emissions when implemented in conjunction with Title 40 CFR Part 61, Subpart FF.

**EUG 34 MPV Subject to Subpart CC**

These emission units are required to be routed to a control device and all emissions are incorporated into the control device emission estimates.



**EUG 35 MPV Routed to FGRS**

Since these emission units are routed to the fuel gas system, there are no estimated emissions for this EUG.

**EUG 36 Startup, Shutdown, and Maintenance (SSM)**

The nature of refining operations requires certain activities that are outside normal continuous operations. These activities result in air emissions that exceed the emission rate of normal operations. Based on historical inventory records, these startup shutdown, and maintenance emissions are estimated as follows:

**Startup, Shutdown, and Maintenance (SSM) Emissions (Tons) per Event**

<b>Event (Release Point)</b>	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>VOC</b>	<b>H<sub>2</sub>S</b>	<b>HF</b>
FCCU Startup (P-65)	1.90	NA	NA	NA	NA	NA	NA
FCCU Shutdown (P-65)	1.40	0.40	NA	NA	NA	NA	NA
CHFT & Hydrocracker Shutdown (P-59)	0.50	0.08	0.25	NA	NA	NA	NA
C-114 Shutdown (P-58)	0.50	0.08	0.25	NA	NA	NA	NA
Misc. Refinery Unit Start Up (P-58 & P-59)	0.40	0.06	0.25	0.10	0.12	NA	NA
Misc. Refinery Unit Shut Down (P-58 & P-59)	0.40	0.06	0.25	0.10	0.12	NA	NA
Refinery Turnaround Depressurization (Fugitive)	NA	NA	NA	NA	36.0	0.10	0.05
Tank degassing, changes in service, maintenance	NA	NA	NA	NA	2.00	0.03	NA

\* These emissions do not include insignificant or trivial activities.

**Facility Wide Emissions**

EUG	NO <sub>x</sub>		CO		PM <sub>10</sub>		SO <sub>2</sub>		VOC	
	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
1	----	----	----	----	----	----	----	----	----	125.29
2	----	----	----	----	----	----	----	----	----	10.50
3	----	----	----	----	----	----	----	----	----	3.13
4	----	----	----	----	----	----	----	----	----	0.31
5	----	----	----	----	----	----	----	----	----	6.31
6	----	----	----	----	----	----	----	----	----	22.50
7	----	----	----	----	----	----	----	----	----	14.68
8	----	----	----	----	----	----	----	----	----	4.79
10	169.41	623.09	130.09	459.53	15.69	58.91	54.31	237.97	11.36	38.23
11	18.90	63.65	15.87	53.46	1.43	4.84	4.95	21.74	1.05	3.50
12	14.08	47.45	11.82	39.85	1.07	3.61	3.71	16.24	0.77	2.61
13	2.41	8.20	2.76	9.27	0.25	0.84	0.53	2.33	0.18	0.61
14	1.69	7.39	2.62	11.47	0.24	1.04	1.07	4.68	0.17	0.75
15/22	40.80	16.38	220.0	89.14	5.60	2.01	20.16	8.09	84.00	33.73
16/24	5.90	25.85	4.42	19.33	0.73	3.20	38.18	167.2	0.27	1.31
17	9.37	41.05	6.67	22.47	1.14	3.84	8.00	35.03	0.34	1.47
18	5.20	15.79	13.00	39.48	0.00	0.00	0.01	0.01	30.16	73.66
19/20/26	118.0	344.8	178.1	234.7	22.83	53.35	66.44	223.6	0.78	3.40
21	95.56	16.80	22.82	4.21	2.84	0.53	1.51	0.25	3.02	0.62
23	13.95	27.90	3.01	6.01	0.99	1.98	0.18	0.36	1.13	2.26
25	1.19	5.21	0.44	1.93	0.56	2.46	0.67	2.91	0.05	0.20
27	8.87	38.87	1.31	5.74	0.12	0.52	5.82	25.49	2.18	9.56
28	0.10	0.12	0.54	0.63	0.01	0.01	----	----	1.10	1.29
29	----	----	----	----	----	----	----	----	----	34.50
30	----	----	----	----	----	----	----	----	----	16.69
31	----	----	----	----	----	----	----	----	----	804.47
32/33	----	----	----	----	----	----	----	----	----	154.30
36										
TOTALS	505.43	1,282.6	613.47	997.2	53.50	137.14	205.54	745.90	136.56	1,370.7

**SECTION V. INSIGNIFICANT ACTIVITIES**

The insignificant activities identified and justified in the application are duplicated below. Activities requiring records of hours, quantity, or capacity to verify emissions are below the de minimis are identified below with an asterisk “\*”. Appropriate recordkeeping conditions are specified in the Specific Conditions.

1. \* Stationary reciprocating engines burning natural gas, gasoline, aircraft fuels, or diesel fuel which are either used exclusively for emergency power generation or for peaking power service not exceeding 500 hours/year. This facility has some emergency generators that are used at the facility.

2. Space heaters, boilers, process heaters, and emergency flares less than or equal to 5 MMBTUH heat input (commercial natural gas). This facility has some small heaters rated less than 5 MMBTUH.
3. Emissions from stationary internal combustion engines (SICE) rated less than 50-hp output. This facility has some SICE rated less than 50-hp.
4. \* Emissions from storage tanks constructed with a capacity less than 39,894 gallons which store VOC with a vapor pressure less than 1.5 psia at maximum storage temperature. This facility has some storage tanks with capacities of less than 39,894 gallons which store VOC with vapor pressures less than 1.5 psia.
5. Cold degreasing operations utilizing solvents that are denser than air. This facility has some cold degreasing operations utilizing solvents that are denser than air.
6. Welding and soldering operations utilizing less than 100 pounds of solder and 53 tons per year of electrodes. Welding and soldering are conducted at the facility but are conducted as a part of routine maintenance and is considered a trivial activity and recordkeeping will not be required in the Specific Conditions.
7. Torch cutting and welding of under 200,000 tons of steel fabricated per year. Torch cutting and welding are conducted at the facility but are conducted as a part of routine maintenance and are considered a trivial activity and recordkeeping will not be required in the Specific Conditions.
8. Emissions from the operation of groundwater remediation wells including but not limited to emissions from venting, pumping, and collecting activities subject to de minimis limits for air toxics (252:100-41-43) and HAPs (§ 112(b) of CAAA90). The refinery has these types of wells as a result of RCRA remediation/monitoring activities.
9. Hazardous waste and hazardous materials drum staging areas. This facility has a hazardous materials collection system and satellite collection locations throughout the facility.
10. Exhaust systems for chemical, paint, and/or solvent storage rooms or cabinets, including hazardous waste satellite (accumulation) areas. This facility has storage cabinets and rooms with room exhaust points for chemicals and solvents.
11. \* Activities that have the potential to emit no more than 5 TPY (actual) of any criteria pollutant. Others may be identified and used in the future.

**SECTION VI. OKLAHOMA AIR POLLUTION CONTROL RULES**

OAC 252:100-1 (General Provisions) [Applicable]  
Subchapter 1 includes definitions but there are no regulatory requirements.

OAC 252:100-2 (Incorporation by Reference) [Applicable]  
This subchapter incorporates by reference applicable provisions of Title 40 of the Code of Federal Regulations. These requirements are addressed in the “Federal Regulations” section.

OAC 252:100-3 (Air Quality Standards and Increments) [Applicable]  
Primary Standards are in Appendix E and Secondary Standards are in Appendix F of the Air Pollution Control Rules. At this time, all of Oklahoma is in attainment of these standards.

OAC 252:100-5 (Registration of Air Contaminant Sources) [Applicable]  
Subchapter 5 requires sources of air contaminants to register with Air Quality, file emission inventories annually, and pay annual operating fees based upon total annual emissions of regulated pollutants. Emission inventories have been submitted and fees paid for the past years.

OAC 252:100-8 (Permits for Part 70 Sources) [Applicable]  
Part 5 includes the general administrative requirements for part 70 permits. Any planned changes in the operation of the facility which result in emissions not authorized in the permit and which exceed the “Insignificant Activities” or “Trivial Activities” thresholds require prior notification to AQD and may require a permit modification. Insignificant activities mean individual EU that either are on the list in Appendix I (OAC 252:100) or whose actual calendar year emissions do not exceed the following limits:

1. 5 TPY of any one criteria pollutant
2. 2 TPY of any one hazardous air pollutant (HAP) or 5 TPY of multiple HAPs or 20% of any threshold less than 10 TPY for single HAP that the EPA may establish by rule

Emission and operating limitations have been established based on information in the permit application and Permit No. 98-172-C (M-20) (PSD).

OAC 252:100-9 (Excess Emission and Malfunction Reporting Requirements) [Applicable]  
In the event of any release that results in excess emissions, the owner or operator of such facility shall notify the Air Quality Division as soon as the owner or operator of the facility has knowledge of such emissions, but no later than 4:30 p.m. the next working day. Within ten (10) working days after the immediate notice is given, the owner or operator shall submit a written report describing the extent of the excess emissions and response actions taken by the facility. In addition, if the owner or operator wishes to be considered for the exemption established in 252:100-9-3.3, a Demonstration of Cause must be submitted within 30 calendar days after the occurrence has ended.

OAC 252:100-13 (Open Burning)

[Applicable]

Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in this subchapter.

OAC 252:100-17 (Incinerators)

[Not Applicable]

This subchapter specifies design and operating requirements and emission limitations for incinerators, municipal waste combustors, hospital, medical, and infectious waste incinerators, and commercial and industrial solid waste incineration units. Thermal oxidizers, flares, and any other air pollution control devices are exempt from Part 1 of this subchapter for incinerators. This facility does not have any municipal waste combustors, hospital, medical, and infectious waste incinerators, and commercial and industrial solid waste incineration units. The incinerators at the refinery are considered thermal oxidizers, flares, and other air pollution control devices.

OAC 252:100-19 (Particulate Matter)

[Applicable]

This subchapter specifies a particulate matter (PM) emission limitation of 0.6 lb/MMBTU from fuel-burning units with a rated heat input of 10 MMBTUh or less. All of the small (<10 MMBTUh) fuel-burning units are fired with refinery fuel-gas or diesel fuel. Fuel-burning equipment with a rated heat input between 10 and 1,000 MMBTUh are limited to between 0.599 and 0.20 lb/MMBTU as defined in Appendix C. Fuel-burning unit is defined as “any internal combustion engine or gas turbine or any other combustion device used to convert the combustion of fuel into usable energy.” Since thermal oxidizers, flares, and incinerators are pollution control devices designed to destroy pollutants and are not used to convert fuel into usable energy, they do not meet the definition of fuel-burning unit and are not subject to these requirements. The FCCU regenerators and the CCR also do not convert combustion of fuel into usable energy, except for the CO boilers, therefore, are not considered fuel-burning units. The following tables list all fuel-burning equipment affected by this permit and their associated emissions.

	Description	Rating	SC 19 Limit	Emissions
EU	Boilers	MMBTUH	lb/MMBTU	lb/MMBTU
B-253	CO Boiler	144.0	0.32	0.01
B-254	Boiler/CO Boiler	144.0	0.32	0.01
B-801	Boiler	72.5	0.38	0.01
B-802	Boiler	89.8	0.36	0.01
B-803	Boiler	86.8	0.36	0.01
H-101	Process Heater	30.8	0.46	0.01
H-102A	Process Heater	160.0	0.31	0.01
H-102B	Process Heater	135.0	0.32	0.01
H-103	Process Heater	102.6	0.35	0.01
H-201	Process Heater	116.7	0.34	0.01
H-301	Process Heater	21.6	0.50	0.01
H-401A	Process Heater	16.0	0.54	0.01
H-401B	Process Heater	14.8	0.55	0.01
H-402A	Process Heater	13.9	0.56	0.01

	Description	Rating	SC 19 Limit	Emissions
EU	Heaters	MMBTUH	lb/MMBTU	lb/MMBTU
H-402B	Process Heater	15.8	0.54	0.01
H-403	Process Heater	98.7	0.35	0.01
H-404/5	Process Heater	99.3	0.35	0.01
H-406	Process Heater	28.0	0.47	0.01
H-407	Process Heater	25.0	0.48	0.01
H-411	Process Heater	28.0	0.47	0.01
H-601	Process Heater	58.5	0.40	0.01
H-603	Process Heater	125.5	0.33	0.01
H-901	Process Heater	60.0	0.39	0.01
H-1016	Process Heater	4.8	0.60	0.01
H-5602	Hot Oil Heater	20.0	0.51	0.01
H-6501	Process Heater	92.1	0.35	0.01
H-6502	Process Heater	54.3	0.40	0.01
H-6701	Co-Processor Heater	11.8	0.59	0.01
H-15001	Process Heater	326.8	0.26	0.01
H-100024	Asphalt Tank Heater	13.5	0.56	0.01
H-210001	Process Heater	12.2	0.57	0.01
	<b>Diesel Fired Engines</b>			
C-80018	Detroit Diesel/8V-92TA	3.6	0.60	0.10
EEQ-8801	DMT/DMT-825D2	5.1	0.60	0.10
EEQ-80001	Cummins/6BT5.9G-2	0.6	0.60	0.10
EWCP-1	Caterpillar 3412	4.7	0.60	0.10
EWCP-2	Caterpillar 3412	4.7	0.60	0.10
EWCP-3	Caterpillar 3412	4.7	0.60	0.10

AP-42 (7/98), Section 1.4, Table 1.4-2, lists the total PM emissions for natural gas to be 7.6 lb/MMft<sup>3</sup> or about 0.0076 lb/MMBTU. The permit requires the heaters and boilers to be fired with either refinery fuel-gas or commercial grade natural gas to ensure compliance with Subchapter 19. Since all of the emission limits for the heaters and reboilers under Subchapter 19 are greater than the expected emissions from these units, having the permit require these units to only be fueled with refinery fuel gas or commercial grade natural gas will ensure compliance with this subchapter. AP-42 (10/96), Section 3.4, Table 3.4-1, lists the total PM emissions for diesel-fired engines to be 0.1 lb/MMBTU. The permit requires the use of diesel fuel in the plant compressor engine, the emergency generator engines and the fire-water pump engines to ensure compliance with Subchapter 19.

This subchapter also limits emissions of PM from directly fired fuel-burning units and industrial processes based on their process weight rates. For process rates up to 60,000 lb/hr (30 TPH), the allowable emission rate (E) in pounds per hour is interpolated using the formula in Appendix G ( $E = 4.10 \cdot P^{(0.67)}$ ) where (P) is the process weight rate in tons per hour. For process rates in excess of 60,000 lb/hr (30 TPH), extrapolation of the allowable emission limit is accomplished

using this equation ( $E = 55.0 \cdot P^{(0.11)} - 40$ ). Emission limits established by Subchapter 19 include the front-half and back-half of the PM sampling train. Therefore, representative emissions from these emission units include the anticipated emissions from both the front-half and the back-half of the sampling train and are greater than the limits that will be established in the permit. Listed in the following table are the process weight rates for the EU affected by this permit, the estimated emissions, and the allowable emission limits.

EU	Source	Rate (TPH)	SC 19 Limit (lb/hr)	Emissions (lb/hr)
HI-801	Asphalt Blowstill & TO	10.64	19.99	0.69
FGS-200	FCCU Regenerators <sup>1</sup>	1,443	82.43	51.34
cat_hop	FCCU Catalyst Hopper Vent	700	73.06	3.77
HI-501	SRU Incinerator	5.45	15.40	0.43
CCR	Platformer CCR Vent	0.50	2.58	0.56
H-5601	SRU/TGTU w/Incinerator	21.2	31.73	0.40
HI-8801	WWTP Incinerator	0.01	0.23	0.12

<sup>1</sup> - Based only on the catalyst recirculation rate.

The Asphalt Blowstill and WWTP incinerators only combust waste gases and no specific requirements are needed for these emission units to ensure compliance with this subchapter. The FCCU Regenerators and Catalyst Hopper will be vented to a WS. The permittee will be required to monitor and record the WS operating parameters as shown in the BACT analysis. The SRU tail gas incinerators combust waste gases and refinery fuel-gas as auxiliary fuel and no specific requirements are needed for these emission units to ensure compliance with this subchapter. PM emissions from the Platformer CCR are controlled using a series of internal screens and cyclones. Since the catalyst is very expensive, every effort is made to recover it and minimize air emissions. The CCR is subject to NESHAP, Subpart UUU and is vented to a wet scrubber to control emissions of HCl. Therefore, monitoring under the NESHAP will ensure compliance with this subchapter.

OAC 252:100-25 (Visible Emissions and Particulate Matter)

[Applicable]

No discharge of greater than 20% opacity is allowed except for short-term occurrences, which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case, shall the average of any six-minute period exceed 60% opacity. EU subject to an opacity limit under NSPS are exempt from the requirements of this subchapter. When burning refinery fuel-gas in the combustion units (process heaters and boilers) there is little possibility of exceeding the opacity standards. The FCCU is subject to an opacity limit under NSPS, Subpart J. The Asphalt Blowstill, Platformer CCR, #1 SRU/TGTU, #2 SRU/TGTU, WWTP Incinerator, and diesel fired engines are also subject to this subchapter. For the Asphalt Blowstill and diesel-fired engines (except for small engines used only during emergencies), the permit will require a daily observation of each stack and opacity readings to be conducted if visible emissions are detected. Since the # 1 & #2 SRU/TGTU and WWTP Incinerator combust waste gases and refinery fuel gas, there is little possibility of exceeding the opacity standards for these units. The Platformer CCR is vented to a wet scrubber and also has very little possibility of exceeding the opacity standards.

OAC 252:100-29 (Fugitive Dust)

[Applicable]

No person shall cause or permit the discharge of any visible fugitive dust emissions beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. Under normal operating conditions, this facility will not cause a problem in this area, therefore it is not necessary to require specific precautions to be taken.

OAC 252:100-31 (Sulfur Compounds)

[Applicable]

Part 2 limits the ambient air impact of sulfur dioxide (SO<sub>2</sub>) emissions from any one existing source or any one new petroleum and natural gas process source subject to OAC 252:100-31-26(a)(1). This part also limits the impact of H<sub>2</sub>S emissions from any new or existing source. Recent modeling conducted using ISCST3 was used to show the impacts of the facility on the ambient air as shown in the following tables.

**Ambient Impacts of SO<sub>2</sub> (Preliminary Analysis)**

<b>Averaging Time</b>	<b>Standard µg/m<sup>3</sup></b>	<b>Impact µg/m<sup>3</sup></b>
5-minute*	1,300	1,072
1-hour*	1,200	652
3-hour	650	587
24-hour	130	119

\* - Based on the PSD modeling preliminary analysis and adjustment factors for different averaging periods.

**Ambient Impacts of H<sub>2</sub>S (TV Application)**

<b>Averaging Time</b>	<b>Standard µg/m<sup>3</sup></b>	<b>Impact µg/m<sup>3</sup></b>
24-hour	278	22

Emissions from all of the equipment have been modeled and have been shown to be in compliance with these standards.

Part 5 limits SO<sub>2</sub> emissions from new fuel-burning equipment (constructed after July 1, 1972). For gaseous fuels the limit is 0.2 lb/MMBTU heat input. This is equivalent to approximately 1,203 ppmv sulfur in the fuel gas. All fuel-burning equipment constructed or modified after June 11, 1973, which combust refinery fuel gas are subject to NSPS, Subpart J, which limits the amount of H<sub>2</sub>S in the fuel gas to 0.1 grains/DSCF or approximately 162 ppmv. The refinery fuel gas has a HHV of approximately 800 BTU/SCF, which is equivalent to approximately 0.0336 lb SO<sub>2</sub>/MMBTU. The permit will require all new fuel-burning equipment to be fired with refinery fuel gas with a limit of 0.1 grains/DSCF, except for the diesel fired engines and the FCCU CO boilers.



For liquid fuels the limit is 0.8 lb/MMBTU. All liquid fuels combusted at the facility are low-sulfur fuel oil with a maximum sulfur content of 0.05 percent. AP-42 (9/98), Chapter 1.3, Table 1.3-1, gives an emission factor of  $142 \times S$  pound of  $\text{SO}_2$  per 1,000 gallons which is approximately 0.05 lb/MMBTU when  $S = 0.05\%$  by weight sulfur in the fuel oil. This emission rate is in compliance with the limitation of 0.8 lb/MMBTU. The permit will require the use of fuel oil with a maximum sulfur content of 0.05 % sulfur by weight for the diesel fired engines.

Part 5 also requires new fuel-burning equipment with a heat input greater than 250 MMBTUH to meet other continuous monitoring requirements. There is only one heater (H-15001) that is rated greater than 250 MMTBUH (327 MMBTUH). However, EUs combusting only gaseous fuel containing less than 0.1% by weight sulfur are exempt from these requirements. H-15001 is fired with refinery fuel gas with a maximum sulfur content of 0.1 grains/DSCF, which is approximately 0.00034% by weight sulfur.

Part 5 requires removal or oxidation of  $\text{H}_2\text{S}$  from the exhaust gas of any new petroleum or natural gas process equipment. Oxidation of the  $\text{H}_2\text{S}$  must be conducted in a system that assures at least a 95% reduction of the  $\text{H}_2\text{S}$  in the exhaust gases and that is equipped with an alarm system to signal non-combustion of the exhaust gases. This does not apply to EUs that emit less than 0.3 lb/hr of  $\text{H}_2\text{S}$ .

Emissions from the existing liquid sulfur storage pit, liquid sulfur storage vessel, and the regenerated amine storage vessels are estimated below the exemption level. However, the liquid sulfur storage vessel will be vented to the SRU incinerator or the front end of the SRU. The railcar loading operations are calculated to have emissions of approximately 0.58 lb/hr/railcar based on the maximum loading rate and is subject to this requirement. For facilities with an SRU prior to release to the atmosphere, Subchapter 31 requires the SRU to meet a calculated sulfur reduction efficiency based on the SRU capacity. The existing SRU has a capacity of approximately 119 LTD and the new SRU will have a capacity of approximately 130 LTD. The required  $\text{SO}_2$  reduction efficiency for units with a capacity greater than 5 LTD but less than 150 LTD is calculated using the following formula:  $Z = 92.34 \times (X^{0.00774})$ , where X is the sulfur feed rate in LTD. Based on this formula and the capacity of the existing and new SRU, the required sulfur reduction efficiencies are 95.8% and 95.9%, respectively. The SRU reduction efficiencies are expected to exceed 98% and 99.8%, respectively. All applicable requirements will be incorporated into the permit.

OAC 252:100-33 (Nitrogen Oxides)

[Applicable]

$\text{NO}_x$  emissions are limited to 0.20 lb/MMBTU heat input, three hour average, from all gas-fired fuel-burning equipment constructed after February 2, 1972, with a rated heat input of 50 MMBTUH or greater. The FCCU regenerators, CCR, and incinerators do not meet the definition of fuel-burning equipment and are not subject to this subchapter. All of the fuel-burning equipment rated greater than 50 MMBTUH are listed in the table on the following page. All emissions from the heaters and boilers are in compliance with this subchapter.

	Description	Const./Mod.	Rating	SC 33 Limit	Emissions
EU	Heaters	Date	MMBTUH	lb/MMBTU	lb/MMBTU
H-102A	Process Heater	1998	160.0	0.20	0.045
H-102B	Process Heater	1998	135.0	0.20	0.059
H-103	Process Heater	1974	102.6	0.20	0.186
H-201	Process Heater	1974	116.7	0.20	0.098
H-403	Process Heater	1975	98.7	0.20	0.098
H-404/5	Process Heater	1980	99.3	0.20	0.098
H-601	Process Heater	1974	58.5	0.20	0.098
H-603	Process Heater	1992	125.5	0.20	0.066
H-901	Process Heater	1969	60.0	0.20	0.098
H-6501	Process Heater	1992	92.1	0.20	0.060
H-6502	Process Heater	1992	54.3	0.20	0.060
H-15001	Process Heater	1992	326.8	0.20	0.060
	<b>Boilers</b>				
B-253	CO Boiler	2005	144.0	0.20	0.060
B-254	Boiler/CO Boiler	2005	144.0	0.20	0.060
B-801	Boiler	1974	72.5	0.20	0.098
B-802	Boiler	1975	89.8	0.20	0.098
B-803	Boiler	1975	86.8	0.20	0.098

OAC 252:100-35 (Carbon Monoxide)

[Applicable]

Subchapter 35 requires new petroleum catalytic cracking and petroleum reforming units to reduce CO emissions by use of complete secondary combustion of the waste gas generated. Removal of 93 percent or more of the carbon monoxide generated is considered equivalent to secondary combustion. The FCCU Regenerators are subject to this subchapter. The FCCU No. 1 Regenerator reduces CO emissions by secondary combustion in the CO Boilers. The FCCU No. 2 Regenerator is a full combustion unit with CO emissions at or near the detection limit. The FCCU No. 2 Regenerator combust the remaining coke from the catalyst that was not combusted in the FCCU No. 1 Regenerator.

While this rule is not specific about compliance with the alternative standard for OAC 252:100-35, the intent of the regulation is to reduce emissions of CO to a level which is represented by complete combustion. Complete combustion of CO can be shown in other ways such as through operational parameters and exhaust gas CO concentrations. Based on average combustion processes, CO emissions from combustion units that are operating properly average 500 ppmv and range from 1,000 to 50 ppmv.

Operation of the FCCU No. 1 and 2 Regenerators within the established NSPS, Subpart J, CO limit of 500 ppmv in the exhaust gases should assure compliance with the intent of Subchapter 35 (complete combustion).

The Platformer CCR is considered a petroleum catalytic reforming unit and is also subject to this subchapter. Compliance with a CO limit of 0.44 lb/hr in the exhaust gases from the regenerator should assure compliance with the intent of Subchapter 35. The permit will include a requirement to show compliance with the new emission limit quarterly.

OAC 252:100-37 (Volatile Organic Compounds)

[Applicable]

Part 1 requires all vapor-loss control devices, packing glands, and mechanical seals required by this subchapter to be properly installed, maintained, and operated.

Part 3 requires storage vessels constructed after December 28, 1974, with a capacity of 400 gallons or more and storing a VOC with a vapor pressure greater than 1.5 psia at maximum storage temperature to be equipped with a permanent submerged fill pipe or with an organic vapor recovery system. Storage vessels subject to the equipment standards of NSPS, Subparts K, Ka, or Kb are exempt from these requirements. All of the storage vessels at this facility constructed after the effective date are either subject to NSPS or store a VOC with a vapor pressure less than 1.5 psia under actual storage conditions and are exempt from this rule.

Part 3 requires storage vessels constructed after December 28, 1974, with a capacity of 40,000 gallons or more and storing a VOC with a vapor pressure greater than or equal to 1.5 psia to be a pressure vessel or to be equipped with an external floating roof or a fixed roof with an internal floating cover, or to be equipped with a vapor recovery system capable of collecting 85% of the uncontrolled VOC. Storage vessels subject to the equipment standards of NSPS, Subparts K, Ka, or Kb are exempt from these requirements. The oil-water separators (V-8801 & V-8802) are not storage vessels. All of these storage vessels are either subject to NSPS or store a VOC with a vapor pressure less than 1.5 psia under actual storage conditions and are exempt from this rule.

Part 3 applies to VOC loading facilities constructed after December 24, 1974. Facilities with a throughput greater than 40,000 gallons/day are required to be equipped with a vapor-collection and disposal system unless all loading is accomplished by bottom loading with the hatches of the tank truck or trailer closed. Loading facilities subject to the requirements of NSPS, Subpart XX or NESHAP, Subpart R are exempt from these requirements. The light products loading terminal at the refinery is equipped with a vapor-collection and disposal system and the VOC railcar loading terminal will be equipped with a vapor-collection and disposal system. These terminals are also subject to NESHAP, Subpart R and are exempt from these requirements.

Part 5 limits the VOC content of coatings used in coating operations or lines. This facility does not normally conduct coating or painting operations except for routine maintenance of the facility and equipment, which is exempt.

Part 7 requires all VOC gases from a vapor recovery blowdown system to be burned by a smokeless flare or equally effective control device unless it is inconsistent with the "Minimum Federal Safety Standards for the Transportation of Natural and Other Gas by Pipeline" or any State of Oklahoma regulatory agency. This facility flares all emissions that are not processed by a vapor recovery system.

Part 7 requires fuel-burning and refuse-burning equipment to be operated and maintained so as to minimize emissions of VOC. Temperature and available air must be sufficient to provide essentially complete combustion. All equipment at the refinery is operated to minimize emissions of VOC.

Part 7 requires any single or multiple-compartment VOC/water separator that receives effluent water containing more than 200 gallons per day of any VOC, from any equipment processing, refining, storing, or handling VOC to comply with one of the following sets of conditions:

1. The container shall totally enclose the liquid contents and all openings shall be sealed;
2. The container shall be equipped with an external floating roof with a pontoon type or double deck type cover, or a fixed roof with an internal floating cover. The cover shall rest on the surface of the contents and be equipped with a closure seal, or seals, to close the space between the cover and container wall;
3. The container shall be equipped with a vapor recovery system that consists of a vapor-gathering system capable of collecting the VOC vapors and gases discharged and a vapor-disposal system capable of processing such vapors and gases to prevent their emission to the atmosphere; or
4. The container is approved prior to use and is equipped with controls that have efficiencies equal to the controls in listed in OAC 252:100-37(1-3).

For each of the systems, all gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place and the oil removal devices shall be gas-tight except when manual skimming, inspection and/or repair are in progress. The two oil-water separators (V-8801 & V-8802) are equipped with external floating roofs and are subject to NSPS, Subpart QQQ which requires controls equal to or greater than the requirements of OAC 252:100-37(1-3). Part 7 also requires all reciprocating pumps and compressors handling VOC to be equipped with packing glands that are properly installed and maintained in good working order and rotating pumps and compressors handling VOC to be equipped with mechanical seals. Equipment subject to NSPS, Subpart GGG are exempt from these requirements. The equipment affected by this permit at the refinery are subject to the requirements of NSPS, Subpart GGG and NESHA, Subpart CC and are not subject to this rule.

OAC 252:100-42 (Toxic Air Contaminants (TAC))

[Applicable]

Any work practice, material substitution, or control equipment required by the Department prior to June 11, 2004, to control a TAC, shall be retained unless a modification is approved by the Director. Since no Area of Concern (AOC) has been designated anywhere in the state, there are no specific requirements for this facility at this time.

OAC 252:100-43 (Testing, Monitoring, and Recordkeeping)

[Applicable]

This subchapter provides general requirements for testing, monitoring and recordkeeping and applies to any testing, monitoring or recordkeeping activity conducted at any stationary source. To determine compliance with emissions limitations or standards, the Air Quality Director may require the owner or operator of any source in the state of Oklahoma to install, maintain and operate monitoring equipment or to conduct tests, including stack tests, of the air contaminant source. All required testing must be conducted by methods approved by the Air Quality Director and under the direction of qualified personnel. A notice-of-intent to test and a testing protocol shall be submitted to Air Quality at least 30 days prior to any EPA Reference Method stack tests. Emissions and other data required to demonstrate compliance with any federal or state emission

limit or standard, or any requirement set forth in a valid permit shall be recorded, maintained, and submitted as required by this subchapter, an applicable rule, or permit requirement. Data from any required testing or monitoring not conducted in accordance with the provisions of this subchapter shall be considered invalid. Nothing shall preclude the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

**The following Oklahoma Air Pollution Control Rules are not applicable to this facility:**

OAC 252:100-7	Permit for Minor Facilities	not in source category
OAC 252:100-11	Alternative Emissions Reduction	not requested
OAC 252:100-15	Mobile Sources	not in source category
OAC 252:100-23	Cotton Gins	not type of EU
OAC 252:100-24	Grain Elevators	not in source category
OAC 252:100-39	Nonattainment Areas	not in area category
OAC 252:100-47	Existing Municipal Solid Waste Landfills	not in source category

## SECTION VII. FEDERAL REGULATIONS

PSD, 40 CFR Part 52

[Applicable]

Total potential emissions of NO<sub>x</sub>, CO, VOC, SO<sub>2</sub>, and PM<sub>10</sub> are greater than the major source threshold of 100 TPY. Any future increases of emissions must be evaluated for PSD if they exceed a significance level (40 TPY NO<sub>x</sub>, 100 TPY CO, 40 TPY VOC, 40 TPY SO<sub>2</sub>, 25 TPY PM<sub>10</sub>).

NSPS, 40 CFR Part 60

[Subparts Db, Dc, J, Kb, GGG, and QQQ are Applicable]

Subparts D and Da, Fossil Fired Steam Generators. These subparts affect any fossil-fuel-fired steam generating unit with a heat input rate of 250 MMBTUH. Only one EU exceeds 250 MMBTUH and it is not considered a steam generator.

	Description	Rating	Const.
EU	Heaters	MMBTUH	Date
H-15001	Process Heater	326.8	1992

Subpart Db, Industrial-Commercial-Institutional Steam Generating Units. This subpart affects steam generating units with a heat input capacity greater than 100 MMBTUH and that commenced construction, modification, or reconstruction after June 19, 1984. All of the units greater than 100 MMBTUH are shown in the table below.

	Description	Rating	Const.
EU	Boilers	MMBTUH	Date
B-253	CO Boiler	144.0	2004-5
B-254	Boiler/CO Boiler	144.0	2004-5

	<b>Description</b>	<b>Rating</b>	<b>Const.</b>
<b>EU</b>	<b>Heaters</b>	<b>MMBTUH</b>	<b>Date</b>
H-102A	Process Heater	160.0	1998
H-102B	Process Heater	135.0	1998
H-103	Process Heater	102.6	1974
H-201	Process Heater	116.7	1974
H-603	Process Heater	125.5	1992
H-15001	Process Heater	326.8	1992

Most of the EUs meet the definition of process heaters and are not affected units. Process heater means a device that is primarily used to heat a material to initiate or promote a chemical reaction in which the material participates as a reactant or catalyst. Both of the listed CO boilers are subject to this subpart and all applicable requirements have been incorporated into the permit.

Subpart Dc, Small Industrial-Commercial-Institutional Steam Generating Units. This subpart affects steam generating units with a heat input capacity between 10 and 100 MMBTUH and that commence construction, modification, or reconstruction after June 9, 1989. All of the units less than 100 MMBTUH are shown in the table below.

	<b>Description</b>	<b>Rating</b>	<b>Const./Mod.</b>
<b>EU</b>	<b>Boilers</b>	<b>MMBTUH</b>	<b>Date</b>
B-801	Boiler	72.5	1968
B-802	Boiler	89.8	1975
B-803	Boiler	86.8	1979
	<b>Heaters</b>		
H-101	Process Heater	30.8	1998
H-301	Process Heater	21.6	1974
H-401A	Process Heater	16.0	1969
H-401B	Process Heater	14.8	1974
H-402A	Process Heater	13.9	1970
H-402B	Process Heater	15.8	1970
H-403	Process Heater	98.7	1980
H-404/5	Process Heater	99.3	1980
H-406	Process Heater	28.0	1974
H-407	Process Heater	25.0	1974
H-411	Process Heater	28.0	1986
H-601	Process Heater	58.5	1975
H-901	Process Heater	60.0	1969
H-1016	Process Heater	4.8	1954
H-5602	Hot Oil Heater	20.0	2004
H-6501	Process Heater	92.1	1992
H-6502	Process Heater	54.3	1992

	Description	Rating	Const./Mod.
EU	Heaters (cont.)	MMBTUH	Date
H-6701	Co-Processor Heater	11.8	2004
H-100024	Asphalt Tank Heater	13.5	1999
H-210001	Asphalt Tank Heater	12.2	1996

Most of the EUs meet the definition of process heaters and/or were constructed prior to the applicability date and are not affected units. Steam generating unit means a device that combusts any fuel and produces steam or heats water or any other heat transfer medium. The Hot Oil Heater (H-5602) and Asphalt Tank Heaters (H-100024 and H-210001) are considered steam generating units since they heat oil, which is then used to transfer heat to other materials, and are subject to this subpart. All applicable requirements have been incorporated into the permit. These EUs are subject to the fuel recordkeeping requirement of this subpart since they do not combust coal, wood, oil and/or a mixture of these fuels. Per 40 CFR 60.48(g) the owner/operator of each affected EU will be required to record and maintain records of the amounts of each fuel combusted during each month since the potential SO<sub>2</sub> emissions rate of refinery fuel gas is typically below 0.32 lb/MMBTU (~1,540 ppmv H<sub>2</sub>S & ~0.95 gr H<sub>2</sub>S/DSCF @ 800 BTU/SCF).

Subpart I, Hot Mix Asphalt Facilities. This facility does not manufacture hot mix asphalt by heating and drying aggregate and mixing with asphalt cements. This facility only manufactures asphalt cements.

Subpart J, Petroleum Refineries. This subpart applies to the following affected facilities in petroleum refineries: fuel gas combustion devices, FCCU catalyst regenerators, and Claus sulfur recovery plants.

#### Fuel Gas Combustion Devices

Fuel gas combustion device means any equipment, such as process heaters, boilers and flares used to combust fuel gas, except facilities in which gases are combusted to produce sulfur or sulfuric acid. Fuel gas means any gas which is generated at a petroleum refinery and which is combusted. Fuel gas also includes natural gas when the natural gas is combined and combusted in any proportion with a gas generated at a refinery. Fuel gas does not include gases generated by catalytic cracking unit catalyst regenerators and fluid coking burners. All fuel gas combustion devices which commence construction or modification after June 11, 1973, are subject to a fuel gas H<sub>2</sub>S limitation of 0.10 grains of H<sub>2</sub>S/DSCF which is required to be continuously monitored and recorded. All of the heaters and boilers are considered refinery fuel gas combustion devices. The heaters and boilers subject to this subpart based on the date of construction or modification are listed in the following table.

	Description	Rating	Const./Mod.
EU	Boilers	MMBTUH	Date
B-801	Boiler	72.5	1974
B-802	Boiler	89.8	1977
B-803	Boiler	86.8	1979

	<b>Description</b>	<b>Rating</b>	<b>Const./Mod.</b>
<b>EU</b>	<b>Heaters</b>	<b>MMBTUH</b>	<b>Date</b>
B-253	CO Boiler	144.0	2004
B-254	Boiler/CO Boiler	144.0	2004
H-101	Process Heater	30.8	1998
H-102A	Process Heater	160.0	1998
H-102B	Process Heater	135.0	1998
H-103	Process Heater	102.6	1974
H-201	Process Heater	116.7	1974
H-301	Process Heater	21.6	1974
H-401B	Process Heater	14.8	1974
H-403	Process Heater	98.7	1980
H-404/5	Process Heater	99.3	1980
H-406	Process Heater	28.0	1985
H-407	Process Heater	25.0	1974
H-411	Process Heater	28.0	1985
H-601	Process Heater	58.5	1974
H-603	Process Heater	125.5	1992
H-5602	Hot Oil Heater	20.0	2004
H-6501	Process Heater	92.1	1992
H-6502	Process Heater	54.3	1992
H-6701	Co-Processor Heater	11.8	2004
H-15001	Process Heater	326.8	1992
H-100024	Asphalt Tank Heater	13.5	1999
H-210001	Asphalt Tank Heater	12.2	1996

The CO boilers are affected units but only due to the supplemental refinery fuel gas they combust. Fuel gas combusted by the affected units must be monitored and recorded and can be done at one location. Based on 1998 monitoring data, the typical sulfur content of the refinery fuel gas used at the Valero Refinery is 0.027 grains of H<sub>2</sub>S/DSCF. The boiler and process heaters in the following table are not subject to this subpart since they were constructed prior to the applicability date.

	<b>Description</b>	<b>Rating</b>	<b>Const./Mod.</b>
<b>EU</b>	<b>Boilers</b>	<b>MMBTUH</b>	<b>Date</b>
H-401A	Process Heater	16.0	1969
H-402A	Process Heater	13.9	1970
H-402B	Process Heater	15.8	1963
H-901	Process Heater	60.0	1969
H-1016	Process Heater	4.8	1954



The flares and thermal oxidizers listed in the following table are also considered fuel gas combustion devices and are also subject to the fuel gas sulfur content limitation.

		<b>Const./Mod.</b>
<b>EU</b>	<b>Description</b>	<b>Date</b>
Crude Unit Flare	Process Flare	1976
HI-81001	West flare	1993
LPLT	Gasoline Loading Rack Vapor Combustor	1996
HI-8801	WWTP Incinerator	2004

The Alternate Flares were constructed prior to the applicability date of this subpart and are not subject to this subpart. Since the Asphalt Blowstill and Thermal Oxidizer are subject to NESHAP, Subpart LLLLL, it is not subject to this subpart per § 63.8681(e).

		<b>Const./Mod.</b>
<b>EU</b>	<b>Description</b>	<b>Date</b>
altf1	Alternate Crude Unit Flare	<1968
altf2	Alternate Alkylation Unit Flare	<1968
HI-801	Asphalt Blowstill and Thermal Oxidizer	1992

Alternative monitoring plans (AMPs) for the following units have been submitted. Items 1 through 6 have been approved by EPA and/or the AQD. Schedule(s) of Compliance have been submitted for items 7, 8 & 9 and are incorporated into the Specific Conditions of this permit.

1. CCR Catalyst Disengagement Purge Gas System (HI-81001, H-404 and H-405);
2. CCR Catalyst Regeneration Purge Gas System (H-404 and H-405);
3. Tank Truck Loading Dock Vapors (LPLT);
4. Isomerization Unit Desiccant Dryers Purge Vapors (HI-81001);
5. Pressure Swing Absorption (PSA) Off-Gas System (H-15001);
6. H<sub>2</sub>S and CO draegers for use during CEM downtime (AQD).
7. Molten sulfur storage tank T-5602 routed to incinerator HI-5602;
8. #1 SRU molten sulfur storage pit routed to incinerator HI-501;
9. MEROX disulfide settler offgas routed to incinerator HI-801 or HI-501
10. FCC Flue Gas Scrubber (FGS-200)

#### CCR Catalyst Disengagement & Regeneration Purge Gas Systems

Daily Monitoring of the H<sub>2</sub>S content of the H<sub>2</sub> feed to the reformer unit using Draeger tubes and the reformer feedstock and reformer product sulfur concentration using ASTM 2622 with semi-annual submission of the data was accepted by the EPA. If the feedstock or product sulfur content exceeds 81 ppm, the purge gas streams to HI-81001, H-404, and H-405 must be monitored daily and approval of the AMP is considered withdrawn.

#### Tank Truck Loading Dock Vapors

The submittal satisfied the one time monitoring requirement for this type of fuel gas combustion device and no additional monitoring was required.

Isomerization Unit Desiccant Dryers Purge Vapors

Daily Monitoring of the H<sub>2</sub>S content of the Isomerization Unit Dessicant Dryer using Draeger tubes with semi-annual submission of the data was accepted by the EPA.

PSA Off-Gas System

Daily Monitoring of the H<sub>2</sub>S content from the outlet of the zinc oxide bed of the PSA Off-Gas System using Draeger tubes with semi-annual submission of the data was accepted by the EPA.

If the gas stream compositions of the submitted AMPs change the approval of the AMPs are considered withdrawn and must be resubmitted for approval.

FCCU Catalyst Regenerators

All FCCU catalyst regenerators that commence construction or modification after June 11, 1973, are subject to the following limitations:

- 1) A PM emission limitation of 1.0 lb/1,000 lbs of coke burn-off, which is required to be continuously monitored and recorded (when exhaust gases discharged from the FCCU are combusted by a waste heat boiler in which supplemental liquid or solid fuel is burned PM in excess of this limit may be emitted which shall not exceed 0.1 lb/MMBTU of heat input);
- 2) A 30% opacity limitation, except for one six-minute average opacity reading in any one hour period;
- 3) A CO emission limitation of 500 ppm<sub>dv</sub>, which is required to be continuously monitored and recorded; and
- 4) One of the following SO<sub>2</sub> emission limitations:
  - a) For units with an add-on control device, a requirement to reduce SO<sub>2</sub> emissions by 90% or to maintain SO<sub>2</sub> emissions to less than 50 ppm<sub>v</sub>, whichever is less stringent; or
  - b) For units without an add-on control device, an SO<sub>2</sub> emission limitation of 9.8 lbs/1,000 lbs of coke burn-off; or
  - c) A limit of the 0.30 percent by weight or less sulfur in the FCCU fresh feed.Compliance with these limits must be determined based on continuous monitoring and a seven day rolling average.

FCCU catalyst regenerators that commenced construction or modification prior to January 17, 1984, are exempt from the SO<sub>2</sub> emission limit. The FCCU was modified after 1984 and is subject to this entire subpart. All applicable requirements for the FCCU Regenerators have been incorporated into the permit. The Platformer CCR is considered a catalytic reforming unit and is not subject to this subpart.

Claus Sulfur Recovery Plants

For Claus sulfur recovery plants with an oxidation control system or a reduction control system followed by incineration, Subpart J limits SO<sub>2</sub> emissions to 250 ppmvd at 0% excess air. The existing and new SRUs are subject to this emission limit, continuous emission monitoring, and the recordkeeping and reporting requirements of this subpart. All applicable requirements have been incorporated into the permit.

Subpart K, Storage Vessels for Petroleum Liquids. This subpart affects storage vessels of petroleum liquids which have a storage capacity greater than 40,000 gallons but less than 65,000 gallons and which commenced construction, reconstruction, or modification after March 8, 1974, or which have a capacity greater than 65,000 gallons and which commenced construction, reconstruction, or modification after June 11, 1973, but prior to May 19, 1978. The table below lists all storage vessels constructed, reconstructed, or modified between these dates and applicable capacities.

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-1008	Cone	LCO Slurry	2,115	<1.5	1975
T-1082	External Floating	Crude Oil	124,714	≤ 11.1	1974
T-1083	External Floating	Crude Oil	124,714	≤ 11.1	1974
T-1102	Cone	Asphalt	75,786	<1.5	1975
T-1125	External Floating	Gasoline	124,398	≤ 11.1	1974
T-1126	External Floating	Gasoline	124,412	≤ 11.1	1974
T-1127	Cone	Diesel/Kerosene	80,579	<1.5	1974
T-1128	Cone	Diesel/Kerosene	80,639	<1.5	1974
T-1129	Cone	Diesel/Kerosene	2,113	<1.5	1975

Petroleum liquids do not include Nos. 2 through 6 fuel oils, gas turbine fuel oils Nos. 2–GT through 4–GT, or diesel fuel oils Nos. 2–D and 4–D. The diesel/kerosene storage vessels store these types of fuel oils and are not subject to this subpart. Also, any storage vessels storing petroleum liquids with a true vapor pressure less than 1.5 psia do not have to meet the control requirements of this subpart. This would include the asphalt and LCO Slurry storage vessels. Therefore, only storage vessels T-1082, T-1083, T-1125, and T-1126 would be subject to the control requirements of this subpart. However, NESHAP, Subpart CC overlap requirements states that any storage vessel subject to NSPS, Subpart K and NESHAP, Subpart CC is only required to comply with NESHAP, Subpart CC.

All of the “storage vessels associated with petroleum refining process units” and “storage vessels associated with a bulk gasoline terminal” with a capacity greater than or equal to 40 m<sup>3</sup> (251.6 Barrels) listed above are subject to NESHAP, Subpart CC. Therefore, the following storage vessels are only subject to NESHAP, Subpart CC.

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-1008	Cone	LCO Slurry	2,089	<1.5	1975
T-1082	External Floating	Crude Oil	124,714	≤ 11.1	1974
T-1083	External Floating	Crude Oil	124,714	≤ 11.1	1974
T-1125	External Floating	Gasoline	124,398	≤ 11.1	1974
T-1126	External Floating	Gasoline	124,412	≤ 11.1	1974
T-1127	Cone	Diesel/Kerosene	80,579	<1.5	1974
T-1128	Cone	Diesel/Kerosene	80,639	<1.5	1974
T-1129	Cone	Diesel/Kerosene	2,113	<1.5	1975

The asphalt storage vessel listed below is associated with an asphalt processing facility and is subject to NESHAP, Subpart LLLLL.

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-1102	Cone	Asphalt	75,786	<1.5	1975

The following table shows all storage vessels constructed prior to NSPS, Subpart K.

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-1018	External Floating	Alkylate/Gasoline	62,850	≤ 11.1	1953
T-1019	External Floating	Alkylate/Gasoline	66,868	≤ 11.1	1948
T-1085	Cone	Slurry/Fuel Oil #6	55,319	<1.5	1953
T-1111	Cone	Asphalt	55,011	<1.5	1954
T-1113	Cone	Gas Oil / Asphalt	131,005	<1.5	1959
T-1115	External Floating	Gasoline	27,205	≤ 11.1	1953
T-1116	External Floating	Gasoline	27,315	≤ 11.1	1953
T-1118	Cone	Asphalt	79,742	<1.5	1970
T-1121	Cone	Diesel/Kerosene	40,526	<1.5	1968
T-1123	External Floating	Gasoline	60,766	≤ 11.1	1968
T-1124	External Floating	Gasoline	111,721	≤ 11.1	1972
T-1135	Cone	PMA	362	<1.5	1968
V-815	Cone	Wastewater FO	1,731	<1.5	1968
V-818	Cone	Slop Oil	444	<1.5	1968

All of these storage vessels except for the asphalt and PMA storage vessels (which are subject to NESHAP, Subpart LLLLL) are subject to NESHAP, Subpart CC.

Subpart Ka, Storage Vessels for Petroleum Liquids. This subpart affects storage vessels for petroleum liquids that have a storage capacity greater than 40,000 gallons and which commenced construction, reconstruction, or modification after May 18, 1978, and prior to July 23, 1984.

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-1084	External Floating	Crude Oil	124,714	≤ 11.1	1978
T-1130	External Floating	FCCU Gasoline	79,414	≤ 11.1	1978
T-1131	External Floating	Gasoline	125,100	≤ 11.1	1979
T-1132	External Floating	Reformate	80,138	≤ 11.1	1979

Any storage vessels storing petroleum liquids with a true vapor pressure less than 1.5 psia do not have to meet the control requirements of this subpart. All of the other storage vessels are subject to the control requirements of this subpart. However, NESHAP, Subpart CC overlap requirements states that any Group 1 storage vessel subject to NSPS, Subpart Ka and NESHAP, Subpart CC is only required to comply with NESHAP, Subpart CC. Therefore, these storage vessels only have to comply with NESHAP, Subpart CC.

Subpart Kb, VOL Storage Vessels. This subpart affects storage vessels for VOL that have a storage capacity greater than 19,813 gallons and which commenced construction, reconstruction, or modification after July 23, 1984. The following storage vessels are only required to keep readily accessible records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel:

- Storage vessels with a capacity greater than or equal to 39,890 gallons that store a liquid with a maximum true vapor pressure less than 0.5076 psia; or
- Storage vessels with a capacity greater than or equal to 19,813 but less than 39,890 gallons that store a liquid with a maximum true vapor pressure less than 2.1756 psia.

In addition to records of capacity, the following storage vessels are also only required to maintain a record of the VOL stored, the period of storage, and the maximum true vapor pressure of that VOL during the respective storage period:

- Storage vessels with a capacity greater than or equal to 39,890 gallons that store a liquid with a maximum true vapor pressure less than 0.7542 psia; or
- Storage vessels with a capacity greater than or equal to 19,813 but less than 39,890 gallons that store a liquid with a maximum true vapor pressure less than 4.0031 psia.

The table below lists all of the VOL storage vessels constructed after July 23, 1984, with a capacity greater than 19,813 gallons.

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-153	CR	FCCU Charge	200,676	<0.5	2003
T-156	CR	FCCU Slurry	56,000	<0.5	2003
T-1141	CR	Diesel/Kerosene	119,189	<0.5	1992
T-1142	CR	Diesel/Kerosene	79,445	<0.5	1992
T-1151	CR	Asphalt	206,979	<0.5	1998

				<b>VP</b>	<b>Const.</b>
<b>EU</b>	<b>Roof</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>Date</b>
T-1152	EFR	Sour Water	11,890	<11.1	1999
T-1155	EFR	Naptha	163,555	<11.1	2003
T-5801	CR	Amine	895	<2.2	2004-5
T-83001	CR	Sour Water Stripper Feed	18,885	<0.5	1993
T-100149	CR	Asphalt Flux	35,847	<0.5	1996
T-100150	CR	Asphalt Base	35,847	<0.5	1996
T-210003	CR	Asphalt Flux	3,021	<0.5	1996
T-210004	CR	PMA Rxn	6,526	<0.5	1996
T-210005	CR	PMA Rxn	6,526	<0.5	1996
T-210006	CR	PMA	10,197	<0.5	1996
T-210007	CR	PMA	10,197	<0.5	1996
T-210008	CR	PMA	11,715	<0.5	2001

The definition of storage vessel under this subpart does not include process tanks which are defined as tanks that are used within a process (including a solvent or raw material recovery process) to collect material discharged from a feedstock storage vessel or equipment within the process before the material is transferred to other equipment within the process, to a product or by-product storage vessel, or to a vessel used to store recovered solvent or raw material. In many process tanks, unit operations such as reactions and blending are conducted. Other process tanks, such as surge control vessels and bottoms receivers, however, may not involve unit operations. Oil-Water Separators are considered process tanks because they are used to separate the water and oil in the wastewater stream (a unit operation) and the recovered oil (a raw material) is then transferred to another tank for storage before being sent back through the refining process.

Most of the storage vessels do not store a VOL with a vapor pressure greater than 0.5 psia and are only subject to the requirement to keep for the life of the storage vessel records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. T-5801 is also only required to keep for the life of the storage vessel records showing the dimension of the storage vessel and an analysis showing the capacity of the storage vessel. The sour water and naphtha storage vessels (T-1152 & T-1155) are subject to the control requirements of this subpart. Since the overlap requirements of NESHP, Subpart CC state that if a storage vessel at an existing source is subject to NSPS, Subpart Kb it is only required to comply with NSPS Subpart Kb (except as provided in § 640(n)(8)(i) through (iv)), T-1155 is only subject to this subpart except as provided in § 640(n)(8)(i) through (iv). Since NSPS, Subpart QQQ states that a storage vessel subject to the standards in § 60.112b and associated requirements is not subject to the requirements of § 60.692-3. T-1152 and T-1155 are subject to the control requirements of this subpart under 112b and all applicable requirements which will be incorporated into the permit.

Subpart UU, Asphalt Processing and Asphalt Roofing Manufacture. This subpart affects each asphalt storage vessel and each blowing still at petroleum refineries. Asphalt storage vessels and blowing stills that process and/or store asphalt used for roofing and other purposes and that commenced construction or modification after November 18, 1980, are subject to the requirements of this subpart. Asphalt storage vessels and blowing stills that process and/or store only non-roofing asphalt and that commenced construction or modification after May 26, 1981, are also subject to the requirements of this subpart. The Asphalt Blowstill was altered in 1992. However, since only the blowstill thermal oxidizer was replaced and no increase in emissions resulted from the project, the modification was not considered a modification under NSPS. Therefore, the Asphalt Blowstill is not subject to the requirements of this subpart.

EU	Point	Description
HI-801	P62	Asphalt Blowstill and Thermal Oxidizer

Asphalt storage vessels constructed after May 26, 1981, are listed in the following table.

EU	Roof Type	Contents	Barrels	VP Psia	Const. Date
T-1151	Cone	Asphalt	206,979	<0.5	1998
T-210003	Cone	Asphalt Flux	3,021	<0.5	1996
T-210004	Cone	PMA Rxn	6,526	<0.5	1996
T-210005	Cone	PMA Rxn	6,526	<0.5	1996
T-210006	Cone	PMA	10,197	<0.5	1996
T-210007	Cone	PMA	10,197	<0.5	1996
T-210008	Cone	PMA	11,715	<0.5	2001
T-100149	Cone	Asphalt Flux	35,847	<0.5	1996
T-100150	Cone	Asphalt Base	35,847	<0.5	1996

This subpart limits the opacity from asphalt storage tanks to 0 percent, except for one consecutive 15-minute period in any 24-hour period when the transfer lines are being blown for clearing. Method 9 and the procedures in §60.11 are required to determine the opacity.

Due to the overlap provisions of NESHAP, Subpart LLLLL, existing sources subject to this subpart are only required to comply with the NESHAP after May 1, 2006. Therefore, all of the tanks are now only subject to NESHAP, Subpart LLLLL.

Subpart VV, Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry (SOMCI). This subpart affects equipment constructed, reconstructed or modified after January 5, 1981 and on or before November 7, 2006. NSPS, Subpart GGG requires equipment constructed, reconstructed or modified after January 5, 1981 and prior to November 7, 2006 in VOC service to comply with paragraphs §§ 60.482-1 through 60.482-10, 60.484, 60.485, 60.486, and 60.487 except as provided in § 60.593. All equipment in VOC service affected under this permit is subject to NSPS, Subpart GGG or NESHAP Subpart CC.

Subpart VVa, Equipment Leaks of VOC in the Synthetic Organic Chemical Manufacturing Industry (SOMCI). This subpart affects equipment constructed, reconstructed or modified after November 7, 2006. NSPS, Subpart GGGa requires equipment constructed, reconstructed or modified after November 7, 2006 in VOC service to comply with paragraphs §§ 60.482-1a through 60.482-10a, 60.484a, 60.485a, 60.486a, and 60.487a except as provided in § 60.593a. Most of the equipment was constructed prior to November 7, 2007 and is covered under NSPS, Subpart GGG or NESHAP Subpart CC.

Subpart XX, Bulk Gasoline Terminals. This subpart affects loading racks at bulk gasoline terminals which deliver liquid product into gasoline tank trucks and that commenced construction or modification after December 17, 1980. The light products loading terminal at the refinery was built prior to the applicable effective date of this subpart and was later modified to comply with NESHAP, Subpart CC. The new VOC railcar loading rack is subject to NESHAP, Subpart CC. Due to the overlap requirements of NESHAP, Subpart CC and since these are Group 1 loading racks, the loading racks are only subject to NESHAP, Subpart CC.

Subpart GGG, Equipment Leaks of VOC in Petroleum Refineries. This subpart affects each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service at a process unit, which commenced construction or modification after January 4, 1983 and on or before November 7, 2006, and which is located at a petroleum refinery. This subpart defines “process unit” as “components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates: a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.” Subpart GGG requires the leak detection, repair, and documentation procedures of NSPS, Subpart VV. All affected equipment which commenced construction or modification after January 4, 1983 and prior to November 7, 2006 in VOC service and not in HAP service is subject to this subpart. After the effective date of 40 CFR Part 63 NESHAP, Subpart CC, (August 18, 1998), all equipment in organic HAP service is subject only to Subpart CC, which also requires compliance with NSPS, Subpart VV. All applicable requirements have been incorporated into this permit.

Subpart GGGa, Equipment Leaks of VOC in Petroleum Refineries. This subpart affects each valve, pump, pressure relief device, sampling connection system, open-ended valve or line, and flange or other connector in VOC service at a process unit, which commenced construction or modification after November 7, 2006, and which is located at a petroleum refinery. This subpart defines “process unit” as “components assembled to produce intermediate or final products from petroleum, unfinished petroleum derivatives, or other intermediates: a process unit can operate independently if supplied with sufficient feed or raw materials and sufficient storage facilities for the product.” Subpart GGGa requires the leak detection, repair, and documentation procedures of NSPS, Subpart VVa. All affected equipment which commenced construction or modification after November 7, 2006, in VOC service and not in HAP service is subject to this subpart. After the effective date of 40 CFR Part 63 NESHAP, Subpart CC, (August 18, 1998), all equipment in organic HAP service is subject only to Subpart CC, which requires compliance with NSPS, Subpart VV. All applicable requirements have been incorporated into this permit.



Subpart III, VOC Emissions from SOCM I Air Oxidation Unit Processes. This subpart affects facilities with air oxidation reactors that produce, as a product, co-product, by-product, or intermediate, any of the chemicals listed in § 60.617. The Asphalt Blowstill is the only air oxidation process at the facility and it does not produce a listed chemical.

Subpart KKK, Equipment Leaks of VOC from Onshore Natural Gas Processing Plants. This subpart sets standards for natural gas processing plants which are defined as any site engaged in the extraction of natural gas liquids from field gas, fractionation of natural gas liquids, or both. This facility does not extract natural gas liquids from field gas or fractionate natural gas liquids.

Subpart LLL, Onshore Natural Gas Processing: SO<sub>2</sub> Emissions. This subpart affects each sweetening unit and each sweetening unit followed by a SRU that process natural gas which commenced construction or modification after January 20, 1984. Natural gas means a naturally occurring mixture of hydrocarbon and non-hydrocarbon gases found in geologic formations beneath the earth's surface. This facility only processes gases that are generated at the facility from the processing of crude oil.

Subpart NNN, VOC Emissions from SOCM I Distillation Operations. This subpart affects facilities that are a part of a process unit that produce, as a product, co-product, by-product, or intermediate, any of the chemicals listed in § 60.667. This facility produces listed chemicals and uses distillation to separate the desired product. However, none of the distillation and recovery process streams are vented to the atmosphere.

Subpart OOO, Nonmetallic Mineral Processing Plants. This subpart affects each crusher, grinding mill, screening operation, bucket elevator, belt conveyor, bagging operation, storage bin, enclosed truck or railcar loading station at nonmetallic mineral processing plants. This facility does not crush or grind any nonmetallic minerals.

Subpart QQQ, VOC Emission from Petroleum Refinery Wastewater Systems. This subpart applies to individual drain systems, oil-water separators, and aggregate facilities located in a petroleum refinery and which commenced construction, modification, or reconstruction after May 4, 1987. Drains are required to be equipped with water seal controls. Junction boxes are required to be equipped with a cover and may have an open vent pipe. Sewer lines shall not be open to the atmosphere and shall be covered or enclosed in a manner so as to have no visual gaps or cracks in joints, seals, or other emission interfaces. Oil-water separators shall be equipped with a fixed roof or a floating roof, which meets the required specifications. Group 1 wastewater streams that are managed under this subpart that are also subject to the provisions of NESHAP, Subpart CC are only required to comply with Subpart CC which requires compliance with NESHAP, Subpart FF. Subpart FF allows oil-water separators to comply with the requirements for alternative standards for oil-water separators of Subpart QQQ. This facility is subject to the requirements of NESHAP, Subpart CC. However, the Oil-Water Separators (V-8801 & V-8802) comply with the Alternative Standards for Oil-Water Separators of this subpart. Storage vessel T-83001 which handles a Group 2 wastewater stream is also subject to the requirements of this subpart (§ 60.692-3). T-1152 which is subject to the standards in § 60.112b and associated requirements is not subject to the requirements of § 60.692-3

Subpart RRR, VOC Emissions from SOCM I Reactor Processes. This subpart affects facilities that are a part of a process unit that produce, as a product, co-product, by-product, or intermediate, any of the chemicals listed in § 60.707. This facility produces listed chemicals and has a reactor to produce the desired products. However, all streams from the reactors are recovered. There are no vent streams to control.

Subpart IIII, Stationary Compression Ignition Internal Combustion Engines, affects stationary compression ignition (CI) internal combustion engines (ICE) based on power and displacement ratings, depending on date of construction, beginning with those constructed after July 11, 2005. For the purposes of this subpart, the date that construction commences is the date the engine is ordered by the owner or operator. All of the CIICE at this facility were constructed prior to the applicability date.

Subpart JJJJ, Stationary Spark Ignition Internal Combustion Engines (SI-ICE), promulgates emission standards for all new SI engines ordered after June 12, 2006, and all SI engines modified or reconstructed after June 12, 2006, regardless of size. The specific emission standards (either in g/hp-hr or as a concentration limit) vary based on engine class, engine power rating, lean-burn or rich-burn, fuel type, duty (emergency or non-emergency), and numerous manufacture dates. Engine manufacturers are required to certify certain engines to meet the emission standards and may voluntarily certify other engines. An initial notification is required only for owners and operators of engines greater than 500 HP that are non-certified. Emergency engines will be required to be equipped with a non-resettable hour meter and are limited to 100 hours per year of operation excluding use in an emergency (the length of operation and the reason the engine was in operation must be recorded). The engines in this permit were manufactured prior to July 1, 2007 and are not subject to this subpart.

NESHAP, 40 CFR Part 61

[Subpart FF is Applicable]

Subpart J, Equipment Leaks (Fugitive Emission Sources) of Benzene. This subpart affects process streams that contain more than 10% benzene by weight. The maximum benzene concentration in any product stream at this site is 5% in super unleaded gasoline, and only trace amounts are expected in the refinery fuel gas.

Subpart FF, Benzene Waste Operations. This subpart affects benzene-contaminated wastewater at petroleum refineries. Facilities with 10 metric tons of benzene are required to manage and treat the waste streams. This facility has elected to manage and treat the facility wastes such that the uncontrolled benzene quantity in the wastes is equal to or less than 6.0 metric tons per year.

NESHAP, Part 63, Subpart CC, requires all Group 1 wastewater streams to comply with §§ 61.340 through 61.355 of 40 CFR Part 61, Subpart FF, for each process wastewater stream that meets the definition in § 63.641. All applicable requirements have been incorporated into this permit.

NESHAP, 40 CFR Part 63

[Subparts CC, UUU, and LLLLL are Applicable]

Subpart G, Organic Hazardous Air Pollutants From the Synthetic Organic Chemical Manufacturing Industry for Process Vents, Storage Vessels, Transfer Operations, and Wastewater. Subpart CC requires all Group 1 storage vessels to comply with §§ 63.119 through 63.121 of Subpart G. The Group 1 storage vessels are listed in the NESHAP, Subpart CC section. Storage Vessels subject to NSPS, Subpart Kb are not subject due to the overlap provisions of NESHAP, Subpart CC.

Subpart Q, Industrial Cooling Towers. This subpart applies to all new and existing industrial process cooling towers that are operated with chromium-based water treatment chemicals on or after September 8, 1994, and are either major sources or are integral parts of facilities that are major sources as defined in § 63.401. This facility does not have or use industrial process cooling towers that are operated with chromium-based water treatment chemicals.

Subpart R, Gasoline Distribution Facilities. Bulk gasoline terminals or pipeline breakout stations with a Standard Industrial Classification code 2911 located within a contiguous area and under common control with a refinery complying with Subpart CC, §§ 63.646, 63.648, 63.649, and 63.650 are not subject to this subpart, except as specified in Subpart CC, § 63.650. Subpart CC, § 63.650(a) requires all facilities to comply with Subpart R, §§ 63.421, 63.422 (a) through (c), 63.425 (a) through (c), 63.425 (e) through (h), 63.427 (a) and (b), and 63.428 (b), (c), (g)(1), and (h)(1) through (h)(3). Subpart CC § 63.650(b) states that all terms not defined in § 63.641 shall have the meaning given them in Subpart A or in 40 CFR part 63, Subpart R and that the definition of “affected source” in § 63.641 applies under this section. § 63.650(c) requires all gasoline loading racks regulated under Subpart CC to comply with the compliance dates specified in § 63.640(h). All applicable requirements of this subpart, as per Subpart CC, are incorporated into the permit for the light products loading terminal and the alkylate/gasoline railcar loading station.

Subpart CC, Petroleum Refineries. This subpart, promulgated on August 18, 1995, affects the following process units and related emission points at petroleum refineries: miscellaneous process vents from petroleum refining process units, storage vessels associated with petroleum refining process units, wastewater streams and treatment operations associated with petroleum refining process units, and equipment leaks from petroleum refining process units; gasoline loading racks, marine vessel loading operations, and all storage vessels and equipment leaks associated with a bulk gasoline terminal or pipeline breakout station. The affected emission points are listed with a summary of applicable requirements.

Petroleum refining process units are defined as a process unit engaged in petroleum refining as defined in the SIC code for petroleum refining (SIC 2911) and used primarily for the following:

1. Producing transportation fuels (such as gasoline, diesel fuels, and jet fuels), heating fuels (such as kerosene, fuel gas distillate, and fuel oils), or lubricants;
2. Separating petroleum; or
3. Separating, cracking, reacting, or reforming intermediate petroleum streams.

Examples of such units include, but are not limited to, petroleum-based solvent units, alkylation units, catalytic hydrotreating, catalytic hydrorefining, catalytic hydrocracking, catalytic reforming, catalytic cracking, crude distillation, lube oil processing, hydrogen production, isomerization, polymerization, thermal processes, and blending, sweetening, and treating processes. Petroleum refining process units also include sulfur plants. Catalytic cracking unit catalyst regeneration vents, catalytic reformer regeneration vents, sulfur recovery plant vents and fuel gas emission points were specifically exempted from this subpart.

#### Miscellaneous Process Vents From Petroleum Refining Process Units

Miscellaneous process vent means a gas stream containing greater than 20 ppmv organic HAP that is continuously or periodically discharged during normal operation of a petroleum refining process unit meeting the criteria specified in § 63.640(a). Miscellaneous process vents include gas streams that are discharged directly to the atmosphere, gas streams that are routed to a control device prior to discharge to the atmosphere, or gas streams that are diverted through a product recovery device prior to control or discharge to the atmosphere. Miscellaneous process vents include vent streams from: caustic wash accumulators, distillation tower condensers/accumulators, flash/ knockout drums, reactor vessels, scrubber overheads, stripper overheads, vacuum (steam) ejectors, wash tower overheads, water wash accumulators, blowdown condensers/accumulators, and delayed coker vents. Miscellaneous process vents do not include:

1. Gaseous streams routed to a fuel gas system;
2. Relief valve discharges;
3. Leaks from equipment regulated under § 63.648;
4. Episodic or nonroutine releases such as those associated with startup, shutdown, malfunction, maintenance, depressuring, and catalyst transfer operations;
5. In situ sampling systems (onstream analyzers);
6. Catalytic cracking unit catalyst regeneration vents;
7. Catalytic reformer regeneration vents;
8. Sulfur plant vents;
9. Vents from control devices such as scrubbers, boilers, incinerators, and electrostatic precipitators applied to catalytic cracking unit catalyst regeneration vents, catalytic reformer regeneration vents, and sulfur plant vents;
10. Vents from any stripping operations applied to comply with the wastewater provisions of this subpart, Subpart G of this part, or 40 CFR part 61, subpart FF;
11. Coking unit vents associated with coke drum depressuring at or below a coke drum outlet pressure of 15 pounds per square inch gauge, deheading, draining, or decoking (coke cutting) or pressure testing after decoking;
12. Vents from storage vessels;
13. Emissions from wastewater collection and conveyance systems including, but not limited to, wastewater drains, sewer vents, and sump drains; and
14. Hydrogen production plant vents through which carbon dioxide is removed from process streams or through which steam condensate produced or treated within the hydrogen plant is degassed or deaerated.

The Valero Ardmore Refinery currently has 82 process vents which might be defined as Group 1 miscellaneous process vents. Of these vents, 32 are routed to the fuel gas recovery, treatment, and distribution system(s) and are not defined as miscellaneous process vents. The remaining 50 process vents serve various processing functions and are either routed back to the process heaters, incinerators, or to one of the two flares. All applicable requirements have been incorporated into the permit for these vents.

Storage Vessels Associated with Petroleum Refining Process Units, Bulk Gasoline Terminals, or Pipeline Breakout Stations

Group 1 storage vessels at an existing source are storage vessels with a design capacity greater than or equal to 46,758.5 gallons (1,113.3 barrels) that store a liquid with a maximum true vapor pressure (MTVP) greater than or equal to 1.5084 psia and an annual average true vapor pressure greater than or equal to 1.2038 psia and has an annual average HAP concentration greater than 4 % by weight. Group 2 storage vessels means a storage vessel that does not meet the definition of a Group1 storage vessel.

**Group 1 Storage Vessels Subject to NESHAP, Subpart CC**

				<b>MTVP</b>	
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>% HAP</b>
T-1018	External Floating	NHT Charge	62,580	≥ 1.5	>4.0
T-1019	External Floating	Alkylate	66,868	≥ 1.5	>4.0
T-1082	External Floating	Crude Oil	124,714	≥ 1.5	>4.0
T-1083	External Floating	Crude Oil	124,714	≥ 1.5	>4.0
T-1084	External Floating	Crude Oil	124,714	≥ 1.5	>4.0
T-1115	External Floating	Gasoline	27,205	≥ 1.5	>4.0
T-1116	External Floating	Gasoline	27,315	≥ 1.5	>4.0
T-1123	External Floating	Gasoline	60,766	≥ 1.5	>4.0
T-1124	External Floating	Gasoline	111,721	≥ 1.5	>4.0
T-1125	External Floating	Gasoline	124,398	≥ 1.5	>4.0
T-1126	External Floating	Gasoline	124,412	≥ 1.5	>4.0
T-1130	External Floating	FCCU Gasoline	79,414	≥ 1.5	>4.0
T-1131	External Floating	Gasoline	125,100	≥ 1.5	>4.0
T-1132	External Floating	Reformate	80,138	≥ 1.5	>4.0

**Group 2 Storage Vessels Subject to NESHAP, Subpart CC**

				<b>MTVP</b>	
<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Psia</b>	<b>% HAP</b>
T-1008	Cone	LCO Slurry	2,089	<1.5	>4.0
T-1085	Cone	Slurry/Fuel Oil #6	55,319	<1.5	>4.0
T-1113	Cone	Gas Oil / Asphalt	131,005	<1.5	≤ 4.0
T-1121	Cone	Diesel/Kerosene	40,526	<1.5	≤ 4.0
T-1127	Cone	Diesel/Kerosene	80,579	<1.5	≤ 4.0
T-1128	Cone	Diesel/Kerosene	80,639	<1.5	≤ 4.0
T-1129	Cone	Diesel/Kerosene	2,113	<1.5	≤ 4.0
TK-13006	Cone	Fuel Additives	339	<1.5	≤ 4.0

Group 1 and Group 2 storage vessels that are part of an existing source and subject to the provisions of NSPS, Subpart Kb are only required to comply with the provisions of NSPS, Subpart Kb except as provided in § 63.640(n)(8)(i) through (vi). These storage vessels are listed in the NSPS, Subpart Kb section. Group 1 storage vessels that are part of an existing source and subject to the provisions of NSPS, Subparts K or Ka are only required to comply with this subpart. Group 2 storage vessels that are part of an existing source and that are subject to the control requirements of NSPS, Subparts K or Ka are only required to comply with NSPS, Subparts K or Ka. Group 2 storage vessels that are part of an existing source and that are not subject to the control requirements of NSPS, Subparts K or Ka are only required to comply with this subpart. Group 1 Storage Vessels not subject to NSPS, Subpart Kb are required to comply with the requirements of §§ 63.119 through 63.121 except as provided in § 63.646(b) through § 63.646(l). The owner or operator of these storage vessels are required to reduce HAP emissions to the atmosphere either by operating and maintaining a fixed roof and internal floating roof, an external floating roof, an external floating roof converted to an internal floating roof, or a closed vent system and control device, or routing the emissions to a process or a fuel gas system. The facility is also required to meet certain work practices and conduct inspections and maintain the tank seals similar to the requirements of NSPS, Subpart Kb. All applicable requirements have been incorporated into the permit.

#### Wastewater Streams and Treatment Operations Associated w/Petroleum Refining Process Units

The wastewater streams and treatment operations associated with petroleum refining process units in organic HAP service are subject to this subpart and are required to comply with the requirements of this subpart. This subpart requires equipment that is used to manage a Group 1 wastewater stream to comply with the requirements of this subpart and 40 CFR §§ 61.340 through 61.355, NESHA, Subpart FF. For Group 1 wastewater streams managed in a piece of equipment that is also subject to the provisions of NSPS, Subpart QQQ the equipment is only required to comply with the requirements of this subpart. All applicable requirements have been incorporated into the permit.

#### Equipment Leaks from Petroleum Refining Process Units, Bulk Gasoline Terminals, or Pipeline Breakout Stations

All equipment in organic HAP service is required to comply with the provisions of 40 CFR Part 60, Subpart VV and 63.648(b), except as provided in § 63.648(a)(1), (a)(2), and (c) through (i). All equipment subject to NSPS, Subpart GGG and this subpart is only required to comply with this subpart. All applicable requirements have been incorporated into the permit.

#### Gasoline Loading Racks or Pipeline Breakout Stations

Gasoline loading racks are required to comply with Subpart R, §§ 63.421, 63.422 (a) through (c), 63.425 (a) through (c), 63.425 (e) through (h), 63.427 (a) and (b), and 63.428 (b), (c), (g)(1), and (h)(1) through (h)(3). The Light Products Loading Rack and alkylate/gasoline railcar loading rack are subject to this section and all applicable requirements have been incorporated into the permit. This facility does not have a pipeline breakout stations.

#### Marine Vessel Loading Operations

There are no marine vessel loading operations at this facility.

Subpart UUU, Petroleum Refineries: Catalytic Cracking Units, Catalytic Reforming Units, and SRU. This subpart, affects the following EUs:

1. The process vent or group of process vents on fluidized catalytic cracking units that are associated with regeneration of the catalyst used in the unit (*i.e.*, the catalyst regeneration flue gas vent);
2. The process vent or group of process vents on catalytic reforming units (including but not limited to semi-regenerative, cyclic, or continuous processes) that are associated with regeneration of the catalyst used in the unit. This affected source includes vents that are used during the unit depressurization, purging, coke burn, and catalyst rejuvenation;
3. The process vent or group of process vents on Claus or other types of sulfur recovery plant units or the tail gas treatment units serving sulfur recovery plants, that are associated with sulfur recovery; and
4. Each bypass line serving a new, existing, or reconstructed catalytic cracking unit, catalytic reforming unit, or sulfur recovery unit. This means each vent system that contains a bypass line (e.g., ductwork) that could divert an affected vent stream away from a control device used to comply with the requirements of this subpart.

An affected source is a new affected source if the facility commenced construction of the affected source after September 11, 1998. An affected source is an existing affected source if it is not new or reconstructed. All existing affected sources are required to comply with this subpart by April 11, 2005, except as provided by § 63.1563(c). All new sources are required to comply with this subpart as follows:

1. If startup of the new affected source was prior to April 11, 2002, then it must comply with the emission limitations and work practice standards for new and reconstructed sources in this subpart no later than April 11, 2002.
2. If startup of the new affected source was after April 11, 2002, then it must comply with the emission limitations and work practice standards for new and reconstructed sources in this subpart upon startup of the affected source.

#### FCCU Catalyst Regeneration Flue Gas Vents

##### Inorganic HAP Standard

Catalytic cracking units subject to the NSPS, Subpart J, PM emissions limit ( $\leq 1$  lb/1,000 of coke burn off) must comply with the NSPS Subpart J, PM emission limit. The FCCU regenerators are subject to the NSPS, Subpart J emission limit and comply with that limit. Since the facility uses a wet scrubber to control emissions the facility has applied for an AMP to include monitoring of the liquid-to-gas ratio rather than a continuous opacity monitor to show compliance with this standard. The facility is required to monitor the coke burn off rate daily and the hours of operation of the FCCU Regenerators. Since the CO boilers do not combust solid or liquid fossil fuels, fuel combustion monitoring is not required for the CO boilers. As an alternative to a COMS and pursuant to a submitted AMP and Part 5a Schedule of Compliance, the facility monitors and records the L/G ratio to assess compliance with the PM limitation and the opacity standard.

Organic HAP Standard

Catalytic cracking units subject to the NSPS, Subpart J, CO emissions limits ( $\leq 500$  ppmvd @ 0% O<sub>2</sub>) must comply with the NSPS Subpart J, CO emission limit. The FCCU regenerators are subject to the NSPS, Subpart J emission limit and comply with that limit. The FCCU uses a CEM to show compliance with this standard on an hourly basis.

Catalytic Reforming Unit Process Vents

The Platformer CCR is a catalytic reforming unit and will be subject to this subpart.

Inorganic HAP Standard

Catalytic reforming units must comply with one of the inorganic HAP emission limits of § 63.1567(a)(1)(i) (vent to a flare that meets the control device requirements of § 63.11) or (ii) (reduce uncontrolled TOC emissions by 98 % or to less than 20 ppmvd @ 3% O<sub>2</sub>) during initial catalyst depressuring and catalyst purging operations that occur prior to the coke burn-off cycle. These emission limits do not apply to the coke burn-off, catalyst rejuvenation, reduction or activation vents, or to the control systems used for these vents. They also do not apply to emissions from process vents during depressuring and purging operations when the reactor vent pressure is 5 pounds per square inch gauge (psig) or less.

The facility complies with both options depending upon the operating periods within the CCR operation cycle. The facility is required to continuously monitor the flare's pilot light for the presence of a flame and the daily average combustion zone temperature of the heaters used to control emissions. When vent streams are introduced into the flame zone of the process heaters, no monitoring is required. The CCR purge and depressurization gases are vented to the flame zones of H-403 and H-404/H-405. The pilot light of the west flare is monitored continuously.

Organic HAP Standard

Continuous catalytic reforming units must comply with the organic HAP emission limits of § 63.1566(a)(1)(ii) (reduce uncontrolled emissions of HCl by 97% by weight or to a concentration of 10 ppmvd @ 3% O<sub>2</sub>) during coke-burn off and catalyst rejuvenation. The facility installed a wet scrubber and vents the emissions from the coke burn off and rejuvenation to the wet scrubber. The facility is required to monitor the daily average pH of the scrubbing liquid and liquid to gas ratio and maintain them at or above levels established during the initial performance tests ( $\geq 8.0$  and 1.85, respectively).

Sulfur Recovery Units

Sulfur recovery units subject to the NSPS, Subpart J, SO<sub>2</sub> emission limit ( $\leq 250$  ppmvd @ 0% O<sub>2</sub>) must comply with the NSPS Subpart J, SO<sub>2</sub> emission limit. The new and existing SRUs are subject to NSPS, Subpart J and will meet all applicable requirements of this subpart and NSPS, Subpart J. The SRUs use a CEM to show compliance with this standard on a 12-hour rolling average basis.



Bypass Lines

Bypass lines must meet the work practice standards in Table 36 of this subpart. There are no bypass lines for the FCCU. The SRUs have bypass lines that are vented to the east flare system. The CCR bypass valve to the atmosphere has a car seal which can be bypassed in an emergency situation. The facility uses flow monitoring devices to determine if flow is present in the lines hourly.

An operation, maintenance, and monitoring plans was required to be prepared and submitted for the FCCU, CCR, SRUs, and Bypass Lines. The facility submitted the plan with their initial compliance demonstration and their startup, shutdown, and malfunction plan. All applicable requirements of this subpart have been incorporated into the permit.

Subpart EEEE, Organic Liquids Distribution (Non-Gasoline). This subpart affects organic liquid distribution (OLD) operations at major sources of HAP with an organic liquid throughput greater than 7.29 million gallons per year (173,571 barrels/yr). This subpart affects the following EU at existing facilities:

1. Storage Vessels with a capacity  $\geq 20,000$  gallons but  $< 40,000$  gallons that store an organic liquid that contains  $> 5\%$  HAP and that has an annual average vapor pressure  $\geq 1.9$  but  $< 11.1$  psia;
2. Storage Vessels with a capacity  $\geq 40,000$  gallons that store an organic liquid that contains  $> 5\%$  HAP and that has an annual average vapor pressure  $\geq 0.75$  psia.
3. Transfer racks that loads at any position  $\geq 11.8$  million liters (3.12 million gallons) per year of organic liquids into a combination of tank trucks and railcars.

Sources controlled under another NESHAP are exempt from this subpart. There are no OLD operations subject to this subpart.

Subpart ZZZZ, Reciprocating Internal Combustion Engines (RICE). This subpart previously affected only RICE with a site-rating greater than 500 brake horsepower that are located at a major source of HAP emissions. On January 18, 2008, the EPA published a final rule that promulgates standards for new and reconstructed engines (after June 12, 2006) with a site rating less than or equal to 500 HP located at major sources, and for new and reconstructed engines (after June 12, 2006) located at area sources. Owners and operators of new or reconstructed engines at area sources and of new or reconstructed engines with a site rating equal to or less than 500 HP located at a major source (except new or reconstructed 4-stroke lean-burn engines with a site rating greater than or equal to 250 HP and less than or equal to 500 HP located at a major source) must meet the requirements of Subpart ZZZZ by complying with either 40 CFR Part 60 Subpart IIII (for CI engines) or 40 CFR Part 60 Subpart JJJJ (for SI engines). Owners and operators of new or reconstructed 4SLB engines with a site rating greater than or equal to 250 HP and less than or equal to 500 HP located at a major source are subject to the same MACT standards previously established for 4SLB engines above 500 HP at a major source, and must also meet the requirements of 40 CFR Part 60 Subpart JJJJ, except for the emissions standards for CO.

New or reconstructed emergency or limited use stationary RICE does not have to meet the requirements of this subpart and of subpart A of this part except for the initial notification requirements of § 63.6645(d). Emergency stationary RICE is any stationary RICE that operates in an emergency situation. Limited use stationary RICE is any stationary RICE that operates less than 100 hours per year. The stationary RICE connected to the emergency generators (EUs: EEQ-8801 & EEQ-80001) and emergency water curtain RICE (EUs: EWCP-1 through EWCP-3) are considered emergency stationary RICE and are not subject to this subpart. The stationary RICE attached to the Instrument/Plant Air Compressor (C-80018) is rated less than 500-hp and is not subject to this subpart.

Subpart DDDDD, Industrial Boilers and Process Heaters. Subpart DDDDD regulated HAP emissions from industrial boilers and process heaters. In March, 2007, the EPA filed a motion to vacate and remand this rule back to the agency. The rule was vacated by court order, subject to appeal, on June 8, 2007. No appeals were made and the rule was vacated on July 30, 2007. Existing and new small gaseous fuel boilers and process heaters (< 10 MMBTUH heat rating) were not subject to any standards, recordkeeping, or notifications under Subpart DDDDD.

EPA is planning on issuing guidance (or a rule) on what actions applicants and permitting authorities should take regarding MACT determinations under either Section 112(g) or Section 112(j) for sources that were affected sources under Subpart DDDDD and other vacated MACT. It is expected that the guidance (or rule) will establish a new timeline for submission of section 112(j) applications for vacated MACT standards. Until such time as more guidance is received, AQD has determined that a 112(j) determination is not needed for sources potentially subject to a vacated MACT, including Subpart DDDDD. This permit may be reopened to address Section 112(j) when necessary.

The boilers potentially subject to this subpart are shown in the table below.

EU	Description	MMBTUH	Const. Date
H-5602	Hot Oil Heater	20.0	2004
H-6701	Co-Process Heater	11.8	2004

Subpart GGGGG, Site Remediation. This subpart is applicable to facilities that conduct a site remediation which cleans up a remediation material at a facility that is co-located with one or more other stationary sources that emit HAP and meet the affected source definition. This facility is a major source of HAP and currently conducts site remediation at the facility.

Site remediation at a facility is not subject to this subpart, except for the recordkeeping requirements specified in § 63.7881(c), if the site remediation meets the all of the following conditions:

1. Before beginning the site remediation, you determine that for the remediation material to be excavated, extracted, pumped, or otherwise removed during the site remediation that the total quantity of the HAPs (listed in Table 1 of Subpart GGGGG) is less than 1.10 TPY.

2. The facility prepares and maintains at the facility written documentation to support the determination of the total HAP quantity used to demonstrate compliance with § 63.7881(c)(1). The documentation must include a description of the methodology and data used for determining the total HAPs content of the material.
3. This exemption may be applied to more than one site remediation at the facility provided that the total quantity of the HAPs (listed in Table 1 of Subpart GGGGG) for all of the site remediations exempted under this provision are less than 1.10 TPY.

This facility has documented that all of the site remediations at the facility total less than 1.10 TPY and is only subject to the recordkeeping requirements of this subpart. The RCRA corrective action being performed at the site pursuant to the facility's RCRA Subpart B permit is not subject to Subpart GGGGG.

Subpart LLLLL, Asphalt Processing. This subpart affects asphalt processing facilities and asphalt roofing manufacturing lines at major sources of HAPs. The asphalt processing facility at the refinery is subject to this subpart. Asphalt processing facilities include: asphalt flux blowing stills, asphalt flux storage tanks storing asphalt flux intended for processing in the blowing stills, oxidized asphalt storage tanks, and oxidized asphalt-loading racks. The provisions of Subpart J of 40 CFR Part 60 do not apply to emissions from asphalt processing facilities subject to this subpart. This subpart does not apply to any equipment that is subject to Subpart CC of this part or to Subpart K, Ka, or Kb of 40 CFR Part 60. Each blowing still, Group 1 asphalt loading rack, and Group 1 asphalt storage tank at existing, new, and reconstructed asphalt processing facilities; are required to meet one of the following requirements:

1. Reduce total hydrocarbon (THC) mass emissions by 95 percent, or to a concentration of 20 ppmv, on a dry basis corrected to 3 percent oxygen;
2. Route the emissions to a combustion device achieving a combustion efficiency of 99.5 percent;
3. Route the emissions to a combustion device that does not use auxiliary fuel achieving a THC destruction efficiency of 95.8 percent;
4. Route the emissions to a boiler or process heater with a design heat input capacity of 44 megawatts (MW) or greater;
5. Introduce the emissions into the flame zone of a boiler or process heater; or
6. Route emissions to a flare meeting the requirements of § 63.11(b).

The Asphalt Blowstill and Thermal Oxidizer (EU HI-801) are subject to the requirements of this subpart. The Asphalt Blowstill is vented to the Thermal Oxidizer and must maintain the three hour average combustion zone temperature at or above the operating limit established during the initial performance test. The refinery has elected to reduce the THC emissions to a concentration of 20 ppmvd @ 3% O<sub>2</sub>. The initial performance testing established a relationship between the minimum combustion zone temperature and the asphalt blowstill production rate. The facility has requested an alternative monitoring location for the stack temperature. The facility monitors the temperature in a location upstream of the flame zone rather than in the flame zone to help prevent frequent replacement of the thermocouple. The facility has developed and implemented a site-specific monitoring plan according to the provisions of § 63.8688 (g) and (h).

Asphalt loading rack means the equipment at an asphalt processing facility used to transfer oxidized asphalt from a storage tank into a tank truck, rail car, or barge. Group 1 asphalt loading rack means an asphalt loading rack loading asphalt with a maximum temperature of 500 °F or greater and with a maximum true vapor pressure (MTVP) of 1.5 psia or greater. The Asphalt and No. 6 Fuel Oil Railcar and Truck Loading Racks (EUs AsRail & As Truk) are considered Group 2 loading racks since they do not load asphalt with a temperature of 500 °F or greater and with a MTVP of 1.5 psia or greater. The facility monitors the temperature of the asphalt processed to the loading racks daily.

Asphalt storage tank means any tank used to store asphalt flux, oxidized asphalt, and modified asphalt, at asphalt roofing manufacturing facilities, petroleum refineries, and asphalt processing facilities. Group 1 asphalt storage tank means an asphalt storage tank that has a capacity of 47,000 gallons of asphalt or greater and stores asphalt at a maximum temperature of 500 °F or greater and has a MTVP of 1.5 psia or greater. The asphalt storage tanks located at the facility store asphalt at temperatures below 500 °F and with MTVP less than 1.5 psia. Group 2 asphalt storage tank means any asphalt storage tank with a capacity of 2.128 Tons (~497 gallons) of asphalt or greater that is not a Group 1 asphalt storage tank. Group 2 asphalt storage vessels are required to limit exhaust gases to 0% opacity. This subpart does not apply to any equipment that is subject to NESHAP, Subpart CC or to NSPS, Subparts K, Ka, or Kb. Due to the overlap provisions of NESHAP, Subpart LLLLL, existing sources subject to NSPS, Subpart UU are only required to comply with this NESHAP after May 1, 2006. Therefore, all of the tanks previously subject to NSPS, Subpart UU are now only subject to NESHAP, Subpart LLLLL. The table below lists all Group 2 storage vessels subject to this subpart.

<b>EU</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>	<b>Const. Date</b>
T-1102	Cone	Asphalt /Gas Oil	75,786	1975
T-1111	Cone	Asphalt /Fuel Oil /Gas Oil	55,011	1954
T-1118	Cone	Asphalt	79,742	1970
T-1135	Cone	PMA Crosslinking Co-Polymer	362	1968
T-1151	Cone	Asphalt	206,979	1998
T-100149	Cone	Asphalt	35,847	1996
T-100150	Cone	Asphalt	35,847	1996
T-210003	Cone	Asphalt	3,021	1996
T-210004	Cone	Asphalt	6,526	1996
T-210005	Cone	Asphalt	6,526	1996
T-210006	Cone	Polymer Asphalt	10,197	1996
T-210007	Cone	Polymer Asphalt	10,197	1996
T-210008	Cone	Polymer Asphalt	11,715	2001

The affected facilities must comply with the emission limitations (including operating limits) at all times, except during periods of startup, shutdown, and malfunction, and develop and implement a written startup, shutdown, and malfunction plan (SSMP) and site-specific monitoring plan. All applicable requirements have been incorporated into the permit.

CAM, 40 CFR Part 64

[Applicable]

Compliance Assurance Monitoring (CAM) applies to any pollutant specific EU at a major source, that is required to obtain a Title V permit, if it meets all of the following criteria:

1. It is subject to an emission limit or standard for an applicable regulated air pollutant;
2. It uses a control device to achieve compliance with the applicable emission limit or standard; and
3. It has potential emissions, prior to the control device, of the applicable regulated air pollutant greater than major source levels.

The requirements of this part shall not apply to any of the following emission limitations or standards:

1. Emission limitations or standards proposed by the Administrator after November 15, 1990 pursuant to section 111 or 112 of the Act; and
2. Emission limitations or standards for which a part 70 or 71 permit specifies a continuous compliance determination method, as defined in § 64.1.

Continuous compliance determination method (CCDM) means a method, specified by the applicable standard or an applicable permit condition, which:

1. Is used to determine compliance with an emission limitation or standard on a continuous basis, consistent with the averaging period established for the emission limitation or standard; and
2. Provides data either in units of the standard or correlated directly with the compliance limit.

The following emission units use a control device or are a control device that is used to meet an applicable emission limit or standard:

EU	Description	Pollutant	CCDM
CU Flare	Crude Unit Process Flare	VOC	CPM <sup>1</sup>
HI-801	Asphalt Blowstill Thermal Oxidizer	VOC <sup>4</sup>	CPM <sup>2</sup>
		CO	CPM <sup>2</sup>
HI-81001	West Flare	VOC	CPM <sup>1</sup>
LPLT	LPLT Thermal Oxidizer	VOC <sup>4</sup>	CPM <sup>2</sup>
FGS-200	FCCU Regenerators Flue Gas Scrubber	NO <sub>x</sub>	CEM
		CO	CEM
		SO <sub>2</sub>	CEM
		PM <sub>10</sub>	CPM <sup>3</sup>
HI-501	#1 SRU Incinerator	H <sub>2</sub> S/SO <sub>2</sub>	CEM

CPM - Continuous Parameter Monitoring: <sup>1</sup> - Presence of Flare's Pilot light; <sup>2</sup> - Continuous Temperature Monitoring; and <sup>3</sup> - Wet Scrubber Liquid-to-Gas Ratio; <sup>4</sup> - NESHA; <sup>5</sup> - Less than major source thresholds prior to control.

EU	Description	Pollutant	CCDM
Cat_Hop	FCCU Catalyst Hopper Vent Wet Scrubber	PM <sub>10</sub>	CPM <sup>3</sup>
CCR	CCR - H-403, H-404/405	VOC <sup>4</sup>	CPM <sup>2</sup>
H-5601	#2 SRU Incinerator	H <sub>2</sub> S/SO <sub>2</sub>	CEM
HI-8801	WWTP Incinerator	VOC <sup>4</sup>	CPM <sup>2</sup>
SSP-520	Sulfur Storage Pit	H <sub>2</sub> S <sup>5</sup>	N/A
MSLA-520	Molten Sulfur Railcar Loading Arm	H <sub>2</sub> S <sup>5</sup>	N/A
RCALOAD 900	VOC Railcar Loading Station	VOC <sup>4, 5</sup>	CPM <sup>1</sup>
LPG	LPG Loading Station	VOC <sup>5</sup>	N/A

CPM - Continuous Parameter Monitoring; <sup>1</sup> - Presence of Flare's Pilot light; <sup>2</sup> - Continuous Temperature Monitoring; and <sup>3</sup> - Wet Scrubber Liquid-to-Gas Ratio; <sup>4</sup> - NESHAP; <sup>5</sup> - Less than major source thresholds prior to control.

The EUs with CEMs are exempt from the requirements of this part. Some of the EUs are subject to a NESHAP and are also exempt from this part. The flares use continuous monitoring of the pilot light to ensure compliance with the applicable emission limitations or standards. The FCCU monitors the liquid to gas ratio continuously to ensure compliance with the applicable emission limitations and standards. The permit requires the permittee to continuously monitor the FCCU WS operational parameters established during initial testing (WGS liquid to gas ratio, liquid flow rate, and pressure drop) to ensure compliance with the PM<sub>10</sub> emission limits.

Chemical Accident Prevention Provisions, 40 CFR Part 68

[Applicable]

This facility handles naturally occurring hydrocarbon mixtures at a refinery and the Chemical Accident Prevention Provisions are applicable to this facility. The facility was required to submit the appropriate emergency response plan prior to June 21, 1999. The facility has submitted their plan which was given EPA No. 12005 for EPA Facility No. 1000 00128177. More information on this federal program is available on the web page: [www.epa.gov/ceppo](http://www.epa.gov/ceppo).

Stratospheric Ozone Protection, 40 CFR Part 82

[Subparts A and F are Applicable]

These standards require phase out of Class I & II substances, reductions of emissions of Class I & II substances to the lowest achievable level in all use sectors, and banning use of nonessential products containing ozone-depleting substances (Subparts A & C); control servicing of motor vehicle air conditioners (Subpart B); require Federal agencies to adopt procurement regulations which meet phase out requirements and which maximize the substitution of safe alternatives to Class I and Class II substances (Subpart D); require warning labels on products made with or containing Class I or II substances (Subpart E); maximize the use of recycling and recovery upon disposal (Subpart F); require producers to identify substitutes for ozone-depleting compounds under the Significant New Alternatives Program (Subpart G); and reduce the emissions of halons (Subpart H).

Subpart A identifies ozone-depleting substances and divides them into two classes. Class I controlled substances are divided into seven groups; the chemicals typically used by the manufacturing industry include carbon tetrachloride (Class I, Group IV) and methyl chloroform (Class I, Group V). A complete phase-out of production of Class I substances is required by January 1, 2000 (January 1, 2002, for methyl chloroform). Class II chemicals, which are hydrochlorofluorocarbons (HCFCs), are generally seen as interim substitutes for Class I CFCs.

Class II substances consist of 33 HCFCs. A complete phase-out of Class II substances, scheduled in phases starting by 2002, is required by January 1, 2030.

Subpart F requires that any persons servicing, maintaining, or repairing appliances except for motor vehicle air conditioners; persons disposing of appliances, including motor vehicle air conditioners; refrigerant reclaimers, appliance owners, and manufacturers of appliances and recycling and recovery equipment comply with the standards for recycling and emissions reduction.

The Standard Conditions of the permit address the requirements specified at §82.156 for persons opening appliances for maintenance, service, repair, or disposal; §82.158 for equipment used during the maintenance, service, repair, or disposal of appliances; §82.161 for certification by an approved technician certification program of persons performing maintenance, service, repair, or disposal of appliances; §82.166 for recordkeeping; § 82.158 for leak repair requirements; and §82.166 for refrigerant purchase records for appliances normally containing 50 or more pounds of refrigerant.

## **SECTION VIII. TIER CLASSIFICATION, PUBLIC REVIEW, AND FEES**

### **A. Tier Classification and Public Review**

This application has been determined to be Tier II based on the request for an operating permit for a Part 70 source. The permittee has submitted an affidavit that they are not seeking a permit for land use or for any operation upon land owned by others without their knowledge. The affidavit certifies that the applicant owns the land.

The applicant published the "Notice of Filing a Tier II Application" in the *Daily Ardmoreite*, a daily newspaper in Carter County on July 3, 1998. The notice stated that the permit application was available for public review at the Ardmore Public Library, 320 E NW, Ardmore, Oklahoma. The applicant published the "Notice of Draft Permit" in the *Daily Ardmoreite* a daily newspaper, in Carter County on March 23, 2008. The notice stated that the draft permit was available for public review for a period of 30 days at the Ardmore Public Library. The notice also stated that the draft permit was available for public review at the AQD main office and on the DEQ web page at <http://www.deq.state.ok.us>. No comments were received from the public. This facility is located within 50 miles of the Oklahoma-Texas border. Notice of the proposed permit was provided to the state of Texas. No comments were received from the state of Texas. The proposed permit was forwarded to EPA Region VI for a 45-day review period. No comments were received from the EPA.

### **B. Fees Paid**

Part 70 Source Operating Permit Application Fee of \$2,000.

**C. Inspection**

From August 2004 to September 2007, nine partial compliance evaluations (PCE) were conducted at Valero Refinery Co - Oklahoma (Valero) Valero Ardmore Refinery. The PCE were conducted by Environmental Programs Specialists for the Department of Environmental Quality, Air Quality Division. Greg Elliott, Environmental Manager, Tracy Watson, Environmental Engineer, Chad Graves, Environmental Coordinator, and Santiago Galvan, Environmental Engineer, represented Valero.

The previous PCE were conducted in an effort to evaluate the compliance status of the entire facility by evaluating individual processes and the applicable rules and standards. Processes that were evaluated at the Valero Ardmore Refinery include the Flare System, Heaters and Boilers, Sulfur Recovery Unit, Product Loading Rack, Product Storage Tanks, Fluid Catalytic Cracking Unit, VOC Leak Detection and Repair Program, Benzene NESHAP Program, Water Draws and Junction Boxes and an evaluation of the terms of the federal Consent Decree.

FCE 03524 was conducted on September 19, 2007, was based on a series of PCE that focused on specific parts of the refinery operations. The results of the FCE and previous PCE are listed in the report for FCE 03524.

**SECTION IX. SUMMARY**

The facility was constructed and is operating as described in the permit application. Ambient air quality standards are not threatened at this site. Compliance and Enforcement concur with the issuance of this permit. Issuance of the operating permit is recommended.



**PERMIT TO OPERATE  
AIR POLLUTION CONTROL FACILITY  
SPECIFIC CONDITIONS**

**Valero Refining Company - Oklahoma  
Valero Ardmore Refinery**

**Permit No. 98-172-TV (PSD)**

The permittee is authorized to operate in conformity with the specifications submitted to Air Quality (AQD) on December 30, 1998, April 21, 2000, June 10, 2002, January 23, 2003, March 24, 2003, October 6, 2003, September 9, 2003, January 15, 2004, January 20, 2004, June 24, 2004, July 19, 2004, August 3, 2006, August 17, 2007, and all other supplemental materials. The Evaluation Memorandum dated June 16, 2008, explains the derivation of applicable permit requirements and estimates of emissions; however, it does not contain operating limitations or permit requirements. As required by applicable state and federal regulations, the permittee is authorized to operate, the affected equipment in conformity with the specifications contained herein. Continuing operation, under this permit constitutes acceptance of, and consent to, the conditions contained herein:

1. The permittee shall be authorized to operate the affected facilities noted in this permit continuously (24 hours per day, every day of the year) subject to the following conditions:

[OAC 252:100-8-6(a)(1)]

- a. The Crude Unit shall not process fresh feedstock at a rate to exceed 100 thousand barrels per day (MBPD) based on a 12-month rolling average.
- b. The Fluid Catalytic Cracking Unit (FCCU) shall not process fresh feedstock at a rate to exceed 30,000 bbl/day based on a 12-month rolling average.
- c. The Asphalt Blowstill shall not process fresh feedstock at a rate to exceed 16,000 BPD based on a 12-month rolling average.
- d. The Polymer Modified Asphalt (PMA) Unit shall not produce PMA at a rate to exceed 4,200,000 barrels per year (BPY) based on a 12-month rolling total.
- e. The permittee shall determine and record the throughputs of the Crude Unit, FCCU, Asphalt Blowstill, and PMA Unit (daily).
- f. To determine compliance with the limits stated above the permittee shall average the daily throughputs recorded during a calendar month and then determine the 12-month rolling average using the monthly average of daily throughputs.

## 2. Emission limitations and standards for affected Emission Units (EU):

**STORAGE VESSELS (EUG 1-9)**

## a. Storage Vessel Emissions

- i. VOC emissions from all of the storage vessels in EUG 1 through 8 shall not exceed 189.4 tons in any 12 month period. [OAC 252:100-8-6(a)(3)]
- ii. The permittee shall record the throughput of each storage vessel at least monthly and determine, using the methods specified in § 63.641, and record the maximum true vapor pressure (MTVP) of the material stored during the respective storage period. [OAC 252:100-8-6(a)(3)]
- iii. To demonstrate compliance with the emission limits, the permittee shall calculate the emissions from the storage vessels using the storage vessels' throughputs, the associated vapor pressures and the most recent version of EPA Tanks or other applicable program. Compliance with the TPY limit shall be based on a 12-month rolling total and calculated monthly. [OAC 252:100-8-6(a)(3)]

**EUG 1** External Floating Roof (EFR), Group 1 Storage Vessels Subject to NESHAP, Part 63, Subpart CC: EU T-1018, T-1019, T-1082, T-1083, T-1084, T-1115, T-1116, T-1123, T-1124, T-1125, T-1126, T-1130, T-1131, and T-1132.

EU	Point	Roof Type	Barrels
T-1018	F1	External Floating	62,850
T-1019	F2	External Floating	66,868
T-1082	F3	External Floating	124,714
T-1083	F4	External Floating	124,714
T-1084	F5	External Floating	124,714
T-1115	F6	External Floating	27,205
T-1116	F7	External Floating	27,315
T-1123	F8	External Floating	60,766
T-1124	F9	External Floating	111,721
T-1125	F10	External Floating	124,398
T-1126	F11	External Floating	124,412
T-1130	F12	External Floating	79,414
T-1131	F13	External Floating	125,100
T-1132	F14	External Floating	80,138

- a. The permittee shall comply with NESHAP, 40 CFR Part 63, Subpart CC for the affected storage vessel including but not limited to:
  - i. § 63.642 General Standards
  - ii. § 63.646 Storage Vessel Provisions
  - iii. § 63.654 Reporting and Recordkeeping Requirements

**EUG 2** Cone Roof (CR), Group 2 Storage Vessels Subject to NESHAP, Part 63, Subpart CC: EU T-1008, T-1085, T-1113, T-1121, T-1127, T-1128, T-1129, and TK-13006.

<b>EU</b>	<b>Point</b>	<b>Roof Type</b>	<b>Barrels</b>
T-1008	P1	Cone	2,089
T-1085	P2	Cone	55,319
T-1113	P3	Cone	131,005
T-1121	P4	Cone	40,526
T-1127	P5	Cone	80,579
T-1128	P6	Cone	80,639
T-1129	P7	Cone	2,113
TK-13006	P8	Cone	339

- a. The permittee shall comply with NESHAP, 40 CFR Part 63, Subpart CC for the affected storage vessels including but not limited to:
- § 63.654 Reporting and Recordkeeping Requirements – (i)(1) [§ 63.123(a)] & (i)(1)(iv).

**EUG 3** EFR, Group 1 Storage Vessel Subject to NSPS, Part 60, Subpart Kb: EU T-1155.

<b>EU</b>	<b>Point</b>	<b>Roof Type</b>	<b>Barrels</b>
T-1155	F15	External Floating	163,555

- a. The permittee shall comply with NSPS, 40 CFR Part 60, Subpart Kb for the affected storage vessel including but not limited to:
- § 60.112b Standard for VOC - (a)(2);
  - § 60.113b Testing and procedures - (b);
  - § 60.115b Reporting and recordkeeping requirements - (b); and
  - § 60.116b Monitoring of operations (a-c) & (e).

**EUG 4** EFR, Group 2 Storage Vessel Subject to NSPS, Part 60, Subpart Kb: EU T-1152.

<b>EU</b>	<b>Point</b>	<b>Roof Type</b>	<b>Contents</b>	<b>Barrels</b>
T-1152	F16	External Floating	Sour Water Stripper Feed	11,890

- a. The permittee shall comply with NSPS, 40 CFR Part 60, Subpart Kb for the affected storage vessels including but not limited to:
- § 60.112b Standard for VOC - (a)(2);
  - § 60.113b Testing and procedures - (b);
  - § 60.115b Reporting and recordkeeping requirements - (b); and
  - § 60.116b Monitoring of operations (a-c) & (e).

**EUG 5** CR, Group 2 Storage Vessels Subject to NSPS, Part 60, Subpart Kb: EU T-153, T-156, T-1141, T-1142, and T-5801.

EU	Point	Roof Type	Barrels
T-153	P9	Cone	200,676
T-156	P10	Cone	56,000
T-1141	P11	Cone	119,189
T-1142	P12	Cone	79,445
T-5801	P13	Cone	895

- a. The permittee shall comply with NSPS, 40 CFR Part 60, Subpart Kb for the affected storage vessels including but not limited to:
  - i. § 60.116b Monitoring of Operations – (a) & (b).
- b. Storage vessels with a capacity greater than or equal to 950 barrels shall not store a VOL with a MTVP greater than or equal to 0.7542 psia. All other storage vessels shall not store a VOC with VP greater than or equal to 1.5 psia under actual storage conditions. To demonstrate compliance with the vapor pressure limits, the permittee shall determine the MTVP and VP, using the methods specified in § 60.111b, and maintain a record of the MTVP or VP of the material stored in these storage vessels.  
[OAC 252:100-37 & OAC 252:100-8-6(a)(1) & (a)(3)]
- c. The temperature of the asphalt stored in Storage Vessel T-153 shall not equal or exceed 500 °F. To demonstrate compliance with the temperature limit, the permittee shall measure and record at least daily the temperature of the liquid in the storage vessel.  
[OAC 252:100-8-6(a)(1) & (a)(3)]
- d. The temperature of the asphalt stored in Storage Vessel T-156 shall not equal or exceed 500 °F for asphalt. To demonstrate compliance with the temperature limit, the permittee shall measure and record at least daily the temperature of the liquid in the storage vessel.  
[OAC 252:100-8-6(a)(1) & (a)(3)]

**EUG 6** CR, Group 2 Storage Vessels Subject to NESHAP, Part 63, Subpart LLLLL: EU T-1102, T-1111, T-1118, T-1135, T-1151, T-100149, T-100150, T-210003, T-210004, T-210005, T-210006, T-210007, and T-210008.

EU	Point	Roof Type	Barrels
T-1102	P14	Cone	75,786
T-1111	P15	Cone	55,011
T-1118	P16	Cone	79,742
T-1135	P17	Cone	362
T-1151	P18	Cone	206,979
T-100149	P19	Cone	35,847
T-100150	P20	Cone	35,847
T-210003	P21	Cone	3,021
T-210004	P22	Cone	6,526

EU	Point	Roof Type	Barrels
T-210005	P23	Cone	6,526
T-210006	P24	Cone	10,197
T-210007	P25	Cone	10,197
T-210008	P26	Cone	11,715

- a. The permittee shall comply with NESHAP, 40 CFR Part 63, Subpart LLLLL for the affected storage vessels including but not limited to:
- i. §63.8680 What is the purpose of this subpart?
  - ii. §63.8681 Am I subject to this subpart? (a-f)
  - iii. §63.8682 What parts of my plant does this subpart cover? (a-e)
  - iv. §63.8683 When must I comply with this subpart? (b & d)
  - v. §63.8684 What emission limitations must I meet? (a)
  - vi. §63.8685 What are my general requirements for complying with this subpart? (a-d)
  - vii. §63.8686 By what date must I conduct performance tests or other initial compliance demonstrations? (a & b)
  - viii. §63.8687 What performance tests, design evaluations, and other procedures must I use? (a-e)
  - ix. §63.8689 How do I demonstrate initial compliance with the emission limitations? (a-c)
  - x. §63.8692 What notifications must I submit and when? (a-f)
  - xi. §63.8693 What reports must I submit and when? (a-f)
  - xii. §63.8694 What records must I keep? (a & b)
  - xiii. §63.8695 In what form and how long must I keep my records? (a-c)
  - xiv. §63.8696 What parts of the General Provisions apply to me?
  - xv. The permittee shall comply with the following schedule of remedial measures:  
[OAC 252:100-8-6(c)(3)]
    - A. The permittee shall select the final control device technology for EU T-1102, T-1111, T-1118, T-1135, T-1151, T-100149, and T-100150 by March 31, 2008.
    - B. The permittee shall submit the initial notification of compliance status for EU T-210003, T-210004, T-210005, T-210006, T-210007 and T-210008 by March 31, 2008.
    - C. The permittee shall, where necessary, install and commission opacity control devices on EU T-1102, T-1111, T-1118, T-1135, T-1151, T-100149, and T-100150 by June 1, 2009.
    - D. The permittee shall, where necessary, conduct initial Reference Method 9 visual determination of opacity of emissions of EU T-1102, T-1111, T-1118, T-1135, T-1151, T-100149, and T-100150 by July 1, 2009.
    - E. The permittee shall submit the initial notification of compliance status for all affected emission units.

**EUG 7** Oil-Water Separators Subject to NESHAP, Part 63, Subpart CC and Part 61, Subpart FF and OAC 252:100-37: EU V-8801 and V-8802.

EU	Point	Roof Type	Contents	Barrels
V-8801	F17	External Floating	Oil / Water	17,200
V-8802	F18	External Floating	Oil / Water	17,200

- a. The permittee shall comply with the applicable sections of NESHAP, 40 CFR Part 63, Subpart CC, Wastewater Provisions of § 63.647 for the Oil-Water Separators (V-8801 and V-8802) including but not limited to: [40 CFR 63.640-654]
  - i. The permittee shall comply with the requirements of § 61.340 through § 61.355 of 40 CFR Part 61, Subpart FF. [§ 63.647(a)]
    - A. The Oil-Water Separators (V-8801 and V-8802) shall comply with the Alternative Standards for Oil-Water Separators of 40 CFR § 61.352 and § 60.693-2(a).
- b. The cover shall rest on the surface of the contents and be equipped with a closure seal, or seals, to close the space between the cover edge and container wall. All gauging and sampling devices shall be gas-tight except when gauging or sampling is taking place. The oil removal devices shall be gas-tight except when manual skimming, inspection and/or repair is in progress. [OAC 252:100-37-37(2)]

**EUG 8** CR, Storage Vessel Subject to NSPS, 40 CFR Part 60, Subpart Kb and Subpart QQQ: EU T-83001.

EU	Point	Roof Type	Contents	Barrels
T-83001	P27	Cone	Sour Water	18,885

- a. The permittee shall comply with NSPS, 40 CFR Part 60, Subpart Kb for the affected storage vessels including but not limited to:
  - i. § 60.116b Monitoring of Operations – (a) & (b).
- b. The permittee shall comply with the applicable sections of NSPS, 40 CFR Part 60, Subpart QQQ, VOC Emissions From Petroleum Wastewater Systems including but not limited to: [40 CFR 60.690-699]
  - i. § 60.692-3 Standards: Oil-water separators.
- c. EU T-83001 shall be operated with a barrier of diesel fluid. [OAC 252:100-8-6(a)(1)]

**EUG 9** CR, Storage Vessel Subject to OAC 252:100-31: EU T-5602.

EU	Point	Roof Type	Contents	Barrels
T-5602	P28	Cone	Sulfur	3,644

- a. EU TK-5602 shall be vented to the SRU incinerator or the input of the SRU at all times. [OAC 252:100-31-26]

- b. EU TK-5602 is subject to OAC 252:100-31-26 and shall comply with all applicable provisions including but not limited to: [OAC 252:100-31-26]
- i. H<sub>2</sub>S from any new petroleum or natural gas process equipment shall be removed from the exhaust gas stream or it shall be oxidized to SO<sub>2</sub>. H<sub>2</sub>S emissions shall be reduced by a minimum of 95% of the H<sub>2</sub>S in the exhaust gas. [OAC 252:100-31-26(a)(1)]
  - ii. All new thermal devices for petroleum and natural gas processing facilities regulated under OAC 252:100-31-26(a)(1) shall have installed, calibrated, maintained, and operated an alarm system that will signal noncombustion of the gas. [OAC 252:100-31-26(c)]

### COMBUSTION UNITS (EUG 10-14)

- a. Heater & Boiler Emissions
- i. Emissions from the combustion units in EUG: 10 through 14 shall not exceed the following limits in any 12-month period:

Pollutant	TPY
NO <sub>x</sub>	750
CO	574
PM <sub>10</sub>	70
SO <sub>2</sub>	283
VOC	46

- ii. Fuel use (SCF) and heat content (BTU/SCF) for the affected EU shall be monitored and recorded (monthly). [OAC 252:100-8-6(a)(3)]
- iii. Compliance with the emission limitations shall be based on the fuel consumption (MMBTUH - HHV), fuel heat content, and the applicable emission factors. Compliance with the TPY limits shall be based on a 12-month rolling total.
- iv. The permittee shall use the emission factors from AP-42, Chapter 1.4 (7/98) or performance test data, except as indicated below:
  - A. NO<sub>x</sub> - H-102A - 0.045 lb/MMBTU, H-102B - 0.059 lb/MMBTU, H-603 - 0.066 lb/MMBTU, H-6501, H-6502, H-15001 - 0.06 lb/MMBTU; H-5602 - 0.050 lb/MMBTU, and H-6701 - 0.060 lb/MMBTU;
  - B. CO - H-603 - 0.0415, H-6501 and H-6502 - 0.0404, and H-15001 - 0.03 lb/MMBTU; and
  - C. SO<sub>2</sub> - For All EU except EU H-210001 - Use actual H<sub>2</sub>S concentration in the fuel gas and the actual heating value of the fuel.

**EUG 10** Combustion Units Subject to NSPS, Subpart J & OAC 252:100-19 & 33: EU B-801, B-802, B-803, H-102A, H-102B, H-103, H-201, H-403, H-404/5, H-601, H-603, H-6501, H-6502, and H-15001.

EU	Point	Description	MMBTUH
B-801	P29	Boiler	72.5
B-802	P30	Boiler	89.8
B-803	P31	Boiler	86.8
H-102A	P32	Process Heater	160.0
H-102B	P33	Process Heater	135.0
H-103	P34	Process Heater	102.6
H-201	P35	Process Heater	116.7
H-403	P36	Process Heater	98.7
H-404/5	P37	Process Heater	99.3
H-601	P38	Process Heater	58.5
H-603	P39	Process Heater	125.5
H-6501	P40	Process Heater	92.1
H-6502	P41	Process Heater	54.3
H-15001	P42	Process Heater	326.8

- a. These EU are subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
  - i. § 60.104 Standards for sulfur dioxide – (a)(1)
  - ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii)
  - iii. § 60.106 Test methods and procedures – (e)
- b. Emissions of NO<sub>x</sub> from the affected EU shall not exceed 0.2 lb/MMBTU. [OAC 252:100-33]
- c. H-102A shall be operated with Low-NO<sub>x</sub> burners (LNB) and emissions of NO<sub>x</sub> from EU H-102A shall not exceed 0.045 lb/MMBTU. [OAC 252:100-8-34]
- d. H-102B shall be operated with LNB and emissions of NO<sub>x</sub> from EU H-102B shall not exceed 0.059 lb/MMBTU. [OAC 252:100-8-34]
- e. H-603 shall be operated with LNB and emissions of NO<sub>x</sub> and CO from EU H-603 shall not exceed 0.066 lb/MMBTU and 0.0415 lb/MMBTU, respectively. [OAC 252:100-8-34]
- f. H-6501 shall be operated with LNB and emissions of NO<sub>x</sub> and CO from EU H-6501 shall not exceed 0.060 lb/MMBTU and 0.0404 lb/MMBTU, respectively. [OAC 252:100-8-34]
- g. H-6502 shall be operated with LNB and emissions of NO<sub>x</sub> and CO from EU H-6502 shall not exceed 0.060 lb/MMBTU and 0.0415 lb/MMBTU, respectively. [OAC 252:100-8-34]
- h. H-15001 shall be operated with LNB and emissions of NO<sub>x</sub> and CO from EU H-15001 shall not exceed 0.060 lb/MMBTU and 0.030 lb/MMBTU, respectively. [OAC 252:100-8-34]



**EUG 11** Combustion Units Subject to NSPS, Subpart J & OAC 252:100-19: EU H-101, H-301, H-401B, H-406, H-407, and H-411.

EU	Point	Description	MMBTUH
H-101	P43	Process Heater	30.8
H-301	P44	Process Heater	21.6
H-401B	P45	Process Heater	14.8
H-406	P46	Process Heater	28.0
H-407	P47	Process Heater	25.0
H-411	P48	Process Heater	28.0

- a. These EU are subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
- i. § 60.104 Standards for sulfur dioxide – (a)(1)
  - ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii)
  - iii. § 60.106 Test methods and procedures – (e)

**EUG 12** Combustion Units Subject to OAC 252:100-19: EU H-401A, H-402A, H-402B, H-901, and H-1016.

EU	Point	Description	MMBTUH
H-401A	P49	Process Heater	16.0
H-402A	P50	Process Heater	13.9
H-402B	P51	Process Heater	15.8
H-901	P52	Process Heater	60.0
H-1016	P53	Process Heater	4.8

**EUG 13** Combustion Units Subject to NSPS, Subparts Dc & J & OAC 252:100-19: EU H-100024 and H-210001.

EU	Point	Description	MMBTUH
H-100024	P54	Asphalt Tank Heater	13.5
H-210001	P55	Process Heater	12.2

- a. These EU are subject to NSPS, Subpart Dc and shall comply with all applicable requirements including but not limited to: [40 CFR Part 60, Subpart Dc]
- i. The permittee shall record and maintain records of the fuels combusted in each affected EU during each calendar month. [40 CFR 60.48c(g)]
- b. These EU are subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
- i. § 60.104 Standards for sulfur dioxide – (a)(1)
  - ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii)
  - iii. § 60.106 Test methods and procedures – (e)
- c. EU H-210001 shall only be fired with commercial grade natural gas. [OAC 252:100-31]



- a. These flares are subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
  - i. § 60.104 Standards for sulfur dioxide – (a)(1);
  - ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii) or other alternative monitoring approved per § 60.13;
  - iii. § 60.106 Test methods and procedures – (e).
- b. These flares shall comply with all applicable requirements including but not limited to the following requirements: [40 CFR Parts 60 and 63]
  - i. The flare shall meet the design requirements of 40 CFR Part 60 NSPS, Subpart A; or
  - ii. The flare shall meet the design requirements of 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAP), Subpart A.
- c. Compliance with the emission limitations shall be based on the maximum rated capacity (HHV), the respective emissions factors from AP-42, Section 13.5 (1/95).
- d. EU Crude Unit Flare and HI-81001 (P58 & P59) have until December 31, 2011, to certify compliance with NSPS, Subpart J.

**EUG 16** SRU Incinerators Subject to NSPS, Subpart J, NESHAP, Subpart UUU, & OAC 252:100-31: EU HI-501 & HI-5602.

EU	Point	Description
HI-501	P61	#1 SRU Incinerator
HI-5602	P62	#2 SRU Incinerator

Emission limits and standards for the affected EU:

EU	NO <sub>x</sub>		SO <sub>2</sub>	
	lb/hr	TPY	lb/hr	TPY
HI-501	2.0	8.5	12.0 <sup>1</sup>	52.5
HI-5602	4.0	17.4	26.2 <sup>1</sup>	114.7

<sup>1</sup> - 2-hour average of contiguous 1-hour averages.

- a. Each SRU (EU HI-501 and HI-5602) shall be equipped with a tail gas-treating unit (TGTU). The TGTU shall process the off-gases from the SRU. [OAC 252:100-8-6(a)(1)]
- b. These SRU (EU HI-501 and HI-5602) are subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
  - i. § 60.104 Standards for sulfur dioxide – (a)(2)(i);
  - ii. § 60.105 Monitoring of operations – (a)(5)(i & ii) & (e)(4)(i) or other alternative monitoring approved per § 60.13;
  - iii. § 60.106 Test methods and procedures – (a) & (f)(1 & 3).
- c. These SRU (EU HI-501 and HI-5602) are subject to NESHAP, Subpart UUU and shall comply with all applicable provisions by the dates specified in § 63.1563(b) including but not limited to: [40 CFR Part 63, Subpart UUU]
  - i. § 63.1568 What are my requirements for HAP emissions from sulfur recovery units? – (a)(1), (b)(1, 3, 4, 5, 6, & 7), & (c)(1 & 2);

- ii. § 63.1569 What are my requirements for HAP emissions from bypass lines? – (a)(1 & 3), (b)(1-4), & (c)(1 & 2);
- iii. § 63.1570 What are my general requirements for complying with this subpart? – (a) & (c-g);
- iv. 63.1571 How and when do I conduct a performance test or other initial compliance demonstration? – (a) & (b)(1-5);
- v. 63.1572 What are my monitoring installation, operation, and maintenance requirements? – (a)(1-4) & (d)(1-2);
- vi. 63.1574 What notifications must I submit and when? – (a)(2) & (f)(1, 2(i), 2(ii), 2(viii), 2(ix), & 2(x));
- vii. 63.1575 What reports must I submit and when? – (a-h);
- viii. 63.1576 What records must I keep, in what form, and for how long? – (a), (b)(1, 3, 4, 5), & (d-i);
- ix. 63.1577 What parts of the General Provisions apply to me?
- d. These SRU (EU HI-501 and HI-5602) are subject to OAC 252:100-31-26 and shall comply with all applicable provisions including but not limited to: [OAC 252:100-31-26]
  - i. H<sub>2</sub>S from any new petroleum or natural gas process equipment shall be removed from the exhaust gas stream or it shall be oxidized to sulfur dioxide. H<sub>2</sub>S emissions shall be reduced by a minimum of 95% of the H<sub>2</sub>S in the exhaust gas.  
[OAC 252:100-31-26(a)(1)]
  - ii. Sulfur recovery plants operating in conjunction with any refinery process shall have the sulfur reduction efficiencies required below. [OAC 252:100-31-26(a)(2)(B)]
    - A. When the sulfur content of the acid gas stream from the refinery process is greater than 5.0 LT/D but less than or equal to 150.0 LT/D, the required sulfur dioxide emission reduction efficiency of the sulfur recovery plant shall be calculated using the following formula where Z is the minimum emission reduction efficiency required at all times and X is the sulfur feed rate expressed in LT/D of sulfur rounded to one decimal place:  $Z = 92.34 (X^{0.00774})$   
[OAC 252:100-31-26(a)(2)(D)]
  - iii. All new thermal devices for petroleum and natural gas processing facilities regulated under OAC 252:100-31-26(a)(1) shall have installed, calibrated, maintained, and operated an alarm system that will signal non-combustion of the gas.  
[OAC 252:100-31-26(c)]
- e. Compliance with the emission limitations shall be based on the following: #1 SRU Incinerator - NO<sub>x</sub>: the amount of auxiliary fuel (MMBTU) and waste gas (SCF), the heat content of the waste gas (BTU/SCF), and AP-42, Section 1.4 (7/98) or performance test data; SO<sub>2</sub> - the flow rate of the SRU and the CEM data; #2 SRU Incinerator - NO<sub>x</sub>: the amount of auxiliary fuel (MMBTU) and waste gas (SCF), the heat content of the waste gas (BTU/SCF), and AP-42, Section 1.4 (7/98) or performance test data; SO<sub>2</sub> - the flow rate of the SRU and the CEM data. Compliance with the TPY limits shall be based on a 12-month rolling total and calculated monthly.
- f. As an alternate operating scenario, the emissions from the MEROX disulfide settler (V-732) may be vented to # 1 SRU tail gas incinerator.

**EUG 17** Asphalt Blowstill Incinerator Subject to NSPS, Subparts A & J, NESHAP, Subparts A, CC, & LLLLL: EU HI-801.

EU	Point	Description
HI-801	P63	Asphalt Blowstill Incinerator

Emission limits and standards for the affected EU:

	NO <sub>x</sub>		CO		SO <sub>2</sub>	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
HI-801	9.4	41.1	6.7	22.5	8.0	35.0

- a. EU HI-801 is subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
  - i. § 60.104 Standards for sulfur dioxide – (a)(1)
  - ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii) or other alternative monitoring approved per § 60.13.
  - iii. § 60.106 Test methods and procedures – (e)
- b. EU HI-801 is subject to NESHAP, 40 CFR Part 63, Subpart CC and shall comply with the applicable sections for each affected component including but not limited to: [40 CFR Part 63, Subpart CC]
  - i. § 63.642 General Standards - (c-g), (i), (k), & (l);
  - ii. § 63.643 Miscellaneous process vent provisions - (a & b);
  - iii. § 63.644 Monitoring provisions for miscellaneous process vents - (a - e);
  - iv. § 63.645 Test methods and procedures for miscellaneous process vents - (a-h);
  - v. § 63.652 Emissions averaging provisions.
  - vi. § 63.653 Monitoring, recordkeeping, and implementation plan for emissions averaging.
  - vii. § 63.654 Reporting and Recordkeeping Requirements - (e-i).
- c. EU HI-801 is subject to NESHAP, Subpart LLLLL and shall comply with all applicable provisions including but not limited to: [40 CFR Part 63, Subpart LLLLL]
  - i. § 63.8681 Am I subject to this subpart? (a-c) & (e)
  - ii. § 63.8682 What parts of my plant does this subpart cover? (a), (b)(1), & (e)
  - iii. § 63.8683 When must I comply with this subpart? (b)
  - iv. § 63.8684 What emission limitations must I meet? (a-b)
  - v. § 63.8685 What are my general requirements for complying with this subpart? (a-d)
  - vi. § 63.8688 What are my monitoring installation, operation, and maintenance requirements? (a)(1-3), (b)(1-6), (e), & (g)(1-3), & (h-j)
  - vii. § 63.8689 How do I demonstrate initial compliance with the emission limitations? (a-c)
  - viii. § 63.8690 How do I monitor and collect data to demonstrate continuous compliance? (a-c)
  - ix. § 63.8691 How do I demonstrate continuous compliance with the operating limits? (a-d)

- x. § 63.8692 What notifications must I submit and when? (a-f)
- xi. § 63.8693 What reports must I submit and when? (a-f)
- xii. § 63.8694 What records must I keep? (a-d)
- xiii. § 63.8695 In what form and how long must I keep my records? (a-c)
- xiv. § 63.8696 What parts of the General Provisions apply to me?
- d. All off-gases from the asphalt blowstill shall be combusted by a properly operated and maintained incinerator.
- e. The stack flue gas temperature of the incinerator of EU HI-801 shall not drop below 1,260 °F based on a three hour average.
- f. The permittee shall monitor and record the temperature at the stack of the incinerator of EU HI-801 (daily).
- g. EU HI-801 shall not process more than 21,287 lb/hr of waste gas as determined by site-specific parametric association of waste-gas generation as a function of the air flow rate into the asphalt blowing process.
- h. The permittee shall determine and record the supplemental fuel flow and the amount of waste gas generated from the asphalt blowstill per barrel of asphalt (quarterly).
- i. Compliance with the emission limitations shall be based on the following: for NO<sub>x</sub> and CO - the supplemental fuel flow (MMBTUH (HHV)), the waste gas flow rate (lb/hr) and heat content of (BTU/lb), and the emissions factors from AP-42, Section 1.4 (7/98) or performance test data; NO<sub>x</sub> emissions shall include the waste gas nitrogen content (ppmvd); for SO<sub>2</sub> - the flow rate (SCFH) and the H<sub>2</sub>S concentration (gr/DSCF). Compliance with the TPY limits shall be based on a 12-month rolling total and shall be calculated monthly.
- j. The emissions from the MEROX disulfide settler (V-732) off-gas are vented to this control device.

**EUG 18** Gasoline Loading Rack Vapor Combustor Subject to NESHAP, Subpart CC: EU Light Products Loading Terminal (LPLT).

EU	Point	Description
LPLT	P64	Light Products Loading Terminal

Emission limits and standards for the Light Products Loading Terminal:

	NO <sub>x</sub>	CO	VOC
EU	TPY	TPY	TPY
LPLT	15.8	39.5	73.66

- a. The amount of gasoline and diesel loaded at the LPLT shall be recorded monthly and the 12-month rolling total shall be calculated monthly. [OAC 252:100-8-6 (a)(3)]
- b. The LPLT vapor combustor is subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
  - i. § 60.104 Standards for sulfur dioxide – (a)(1)

- ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii) or other alternative monitoring approved per § 60.13.
- iii. § 60.106 Test methods and procedures – (e)
- c. The LPLT vapor combustor shall comply with all applicable requirements including but not limited to the following requirements including but not limited to: [40 CFR Part 63]
  - i. The vapor combustor shall meet the design requirements of 40 CFR Part 63 NESHAP, Subpart A.
- d. The LPLT is subject to NESHAP, 40 CFR Part 63, Subpart CC and shall comply with all applicable requirements including but not limited to: [40 CFR 63, NESHAP, Subpart CC]
  - i. § 63.642 General Standards.
  - ii. § 63.650 Gasoline Loading Rack Provisions.
  - iii. § 63.654 Reporting and Recordkeeping Requirements.
- e. Compliance with the emission limits shall be based on the following: the 12-month rolling total loading throughput of gasoline; and the following factors: VOC and CO: 10 mg/L loaded; NO<sub>x</sub>: 4 mg/L loaded. Fugitive VOC emissions from the Light Products Loading Terminal shall be based on calculated loading losses and a 99.2% collection efficiency for gasoline. Compliance with the TPY limits shall be based on a 12-month rolling total and shall be calculated monthly. Performance test data may also be used to calculate these emissions.

**EUG 19** FCCU Flue Gas Scrubber Subject to NSPS, Subpart J, NESHAP Subpart UUU, & OAC 252:100-19 & 35: EU FGS-200.

EU	Point	Description
FGS-200	P65	FCCU Flue Gas Scrubber

Emission limits and standards for EU FGS-200:

	NO <sub>x</sub>		CO		PM <sub>10</sub> <sup>1</sup>		SO <sub>2</sub>	
Scenario	lb/hr	TPY <sup>2</sup>	lb/hr	TPY <sup>2</sup>	lb/hr	TPY <sup>2</sup>	lb/hr	TPY <sup>2</sup>
2	118.0	344.8	178.1	234.7	26.2	53.2	66.4	223.6

<sup>1</sup> - The PM<sub>10</sub> emission limits are based only on the front-half of the PM<sub>10</sub> sampling train and were determined using USEPA Reference Method 5B.

<sup>2</sup> - Based on a 12-month rolling average.

SO<sub>2</sub> and NO<sub>x</sub> emissions for EU FGS-200 shall also not exceed the following limits:

Additional Emission Limits	
SO <sub>2</sub> Emissions Limits	Averaging Period
50 ppmvd @ 0% O <sub>2</sub>	7-day rolling average
25 ppmvd @ 0% O <sub>2</sub>	365-day rolling average
NO <sub>x</sub> (As NO <sub>2</sub> ) Emissions Limits	Averaging Period
240 ppmvd @ 0% O <sub>2</sub>	7-day rolling average
120 ppmvd @ 0% O <sub>2</sub>	365-day rolling average

- a. EU FGS-200 shall be equipped with continuous emissions monitoring systems (CEMS) for determining and recording NO<sub>x</sub>, CO, and SO<sub>2</sub> emissions corrected to dry basis and 0% O<sub>2</sub>. The CEMS shall meet the applicable performance specifications of 40 CFR Part 60, Appendix B. [OAC 252:100-8-6(a)(3)]
- b. The permittee shall compute the 12-month rolling total NO<sub>x</sub>, CO, and SO<sub>2</sub> emissions from EU FGS-200 using the monthly average monitored NO<sub>x</sub>, CO, and SO<sub>2</sub> concentrations along with the monthly average dry-basis stack gas flow rate.
- c. The off-gases from the FCCU No. 1 Regenerator shall be combusted in one of the CO Boilers prior to being processed by the FGS to reduce emissions of CO. [OAC 252:100-8-34]
- d. The emissions of CO from the FCCU No. 1 Regenerator shall be reduced by use of complete secondary combustion of the waste gas generated. [OAC 252:100-35-2(b)]
  - i. Emissions of CO from the FCCU No. 1 Regenerator shall be vented to and completely combusted in one of the CO Boilers.
- e. The FCCU No. 2 Regenerator shall be operated in full combustion regeneration mode to reduce emissions of CO. [OAC 252:100-8-34 & 100-35-2(b)]
- f. All off-gases from the FCCU No. 1 Regenerator/CO Boiler system and the FCCU No. 2 Regenerator shall be treated by a Wet Scrubber (WS) to control emissions of SO<sub>2</sub> from the FCCU. [OAC 252:100-8-34]
  - i. The WS shall be designed and operated with devices that reduce the amount of entrained water in the WS off-gases.
- g. The FCCU No. 1 Regenerator and the FCCU No. 2 Regenerator shall be operated with internal cyclones to reduce emissions of PM<sub>10</sub>. [OAC 252:100-34]
- h. The permittee shall install monitors to continuously monitor and record the following parameters of the WS:
  - i. Liquid flow rate of the WS (24-hour average).
  - ii. Gas temperature and flow rate through the WS (24-hour average).
  - iii. Liquid to Gas Ratio of the WS (24-hour average).
  - iv. The gas flow rate can be determined through the use of other parametric indicators such as regenerator flowrates based on coke production and combustion, flue-gas CO<sub>2</sub> concentration and flue-gas O<sub>2</sub> concentration, daily regenerator flue gas analysis's, CO boiler combustion calculations, and other parameters that may be monitored.
- i. The daily average liquid to gas ratio, calculated in accordance with 63.1572(c), of the WS shall be greater than 6.3 (lb-mole)/(lb-mole) (daily average).
- j. EU FGS-200 is subject to NSPS, 40 CFR Part 60, Subpart J and shall comply with all applicable requirements including but not limited to: [40 CFR 60, NSPS, Subpart J]
  - i. §60.102 Standard for particulate matter.
  - ii. §60.103 Standard for carbon monoxide.
  - iii. §60.104 Standard for sulfur oxides – (b-d).
  - iv. §60.105 Monitoring of emissions and operations – (a)(1), (a)(2), (a)(8-13), (c), (d), (e)(1), and (e)(2) or other alternative monitoring approved per § 60.13.
  - v. §60.106 Test Methods and Procedures (a-d) and (g-k).
  - vi. §60.107 Reporting and Recordkeeping Requirements (a-f).
  - vii. §60.108 Performance Test and Compliance Provisions (a-e).



- k. EU FGS-200 is subject to NESHAP, Subpart UUU and shall comply with all applicable including but not limited to: [40 CFR Part 63, Subpart UUU]
- i. § 63.1560 What is the purpose of this subpart?
  - ii. § 63.1561 Am I subject to this subpart?
  - iii. § 63.1562 What parts of my plant are covered by this subpart?
  - iv. § 63.1563 When do I have to comply with this subpart?
  - v. § 63.1564 What are my requirements for metal HAP emissions from catalytic cracking units?
  - vi. § 63.1565 What are my requirements for organic HAP emissions from catalytic cracking units?
  - vii. § 63.1569 What are my requirements for HAP emissions from bypass lines?
  - viii. § 63.1570 What are my general requirements for complying with this subpart?
  - ix. § 63.1572 What are my monitoring installation, operation, and maintenance requirements?
  - x. § 63.1574 What notifications must I submit and when?
  - xi. § 63.1575 What reports must I submit and when?
  - xii. § 63.1576 What records must I keep, in what form, and for how long?
  - xiii. § 63.1577 What parts of the General Provisions apply to me?

**EUG 20** CO Boilers Subject to NSPS, Subparts Db & J & OAC 252:100-19 & 33: EU B-253 and B-254. The CO Boilers are vented to EU FGS-200 and all emissions are associated with EU FGS-200.

EU	Point	Description	MMBTUH
B-253	P66	CO Boiler	144.0
B-254	P67	Boiler/CO Boiler	144.0

- a. The CO Boilers shall be vented to the FCCU WS. [OAC 252:100-8-34]
- b. The B-253 shall be equipped with LNB. [OAC 252:100-8-34]
- c. The B-254 shall be equipped with LNB. [OAC 252:100-8-34]
- d. All emissions from the FCCU No. 1 Regenerator shall be processed through EU B-253 and/or B-254.
- e. EU B-253 and B-254 are subject to NSPS, Subpart J and shall comply with all applicable requirements including but not limited to: [40 CFR Part 60, Subpart J]
  - i. § 60.104 Standards for sulfur dioxide – (a)(1)
  - ii. § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii)
  - iii. § 60.106 Test methods and procedures – (e)
- f. The owner or operator shall limit operation of EU B-253 and B-254 to an annual capacity factor (as defined in 40 CFR Part 60, Subpart Db) of 10 percent (0.10) or less for coal, oil, and natural gas. The owner or operator shall record and maintain records of the amounts of each fuel combusted during each day and calculate the annual capacity factor individually for coal, oil, and natural gas. The annual capacity factor shall be determined on a 12-month rolling average basis with a new annual capacity factor calculated at the end of each calendar month. The owner or operator shall demonstrate the maximum heat input

capacity in accordance with § 60.49b(g). If this demonstration indicates that the maximum heat input capacity of the affected facility is less than that stated by the manufacturer of the affected facility, the maximum heat input capacity determined during this demonstration shall be used to determine the capacity utilization rate for the affected facility. Otherwise, the maximum heat input capacity provided by the manufacturer shall be used.

[OAC 252:100-8-6(a)(1) & (3)]

- g. EU B-253 and B-254 are subject to NSPS, Subpart Db and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart Db]
- i. § 60.49b Reporting and Recordkeeping Requirements – (a)(1), (a)(3), & (o).
- h. Emissions of NO<sub>x</sub> from EU B-253 shall not exceed 0.06 lb/MMBTU. [OAC 252:100-8-34]
- i. Emissions of NO<sub>x</sub> from EU B-254 shall not exceed 0.06 lb/MMBTU. [OAC 252:100-8-34]

**EUG 21** Limited Use/Emergency Stationary Reciprocating Internal Combustion Engines (RICE): EU EEQ-8801, EEQ-80001, EWCP-1, EWCP-2, and EWCP-3.

EU	Point	Make/Model	KW (HP)
EEQ-8801	P68	DMT/DMT-825D2	750
EEQ-80001	P69	Cummins/6BT5.9G-2	80
EWCP-1	P70	Caterpillar 3412	(800)
EWCP-2	P71	Caterpillar 3412	(800)
EWCP-3	P72	Caterpillar 3412	(800)

Emission limits and standards for these EU:

- a. EU EEQ-8801, EEQ-80001, EWCP-1, EWCP-2, and EWCP-3 shall not operate more than 50 hours each in any 12-month period, except for emergencies, maintenance checks, and readiness testing. [OAC 252:100-8-6(a)(1)]
- b. Emergency stationary RICE may be operated for the purpose of maintenance checks and readiness testing, provided that the tests are recommended by the manufacturer, the vendor, or the insurance company associated with the engine. Required testing of such units should be minimized, but there is no time limit on the use of emergency stationary RICE in emergency situations and for routine testing and maintenance. Emergency stationary RICE may also operate an additional 50 hours per year in non-emergency situations. [40 CFR Part 63, Subpart ZZZZ, § 63.6675]
- c. All of these EU shall be fitted with non-resettable hour-meters.
- d. The permittee shall record the number of hours each engine is operated each month and the reason for operation that month.
- e. The sulfur content of the fuel for these EU shall not exceed 0.05% by weight (on-road low-sulfur diesel performance specification). [OAC 252:100-31]
- f. The permittee shall sample the fuel tanks of these EU's each quarter to ensure compliance with the 0.05 wt % sulfur content. [OAC 252:100-43]
- g. A serial number or another acceptable form of permanent (non-removable) identification shall be on each EU.

**EUG 22** Flare Subject to NSPS, Subpart A.

EU	Point	Description
Altfl1	P73	Alternate Crude Unit Flare

- a. This flare shall comply with all applicable requirements including but not limited to the following requirements by/during the next use after February 20, 2008:

[40 CFR Parts 60 and 63]

- i. The flare shall meet the design requirements of 40 CFR Part 60 NSPS, Subpart A; or
- ii. The flare shall meet the design requirements of 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants (NESHAP), Subpart A.

**EUG 23** Instrument/Plant Air Compressor: EU C-80018.

EU	Point	Make/Model	hp
C-80018	P74	Detroit Diesel/8V-92TA	450

Emission limits and standards for EU C-80018:

	NO <sub>x</sub>		CO	
EU	lb/hr	TPY	lb/hr	TPY
C-80018	14.0	27.9	3.0	6.0

- a. EU C-80018 shall not operate more than 4,000 hours in any 12-month period.  
[OAC 252:100-8-6(a)(1)]
- b. EU C-80018 shall be fitted with a non-resettable hour-meter.
- c. The permittee shall record the number of hours the engine is operated each month.
- d. The sulfur content of the fuel for EU C-80018 shall not exceed 0.05% by weight. (on-road low-sulfur diesel performance specification)  
[OAC 252:100-31]
- e. The permittee shall sample the fuel tanks of these EU's each quarter to ensure compliance with the 0.05 wt % sulfur content.  
[OAC 252:100-43]
- f. Compliance with the emission limits shall be based on the hours of operation, the horsepower rating (hp), and the emissions factors from AP-42, Section 3.3 (10/96) or performance test data. Compliance with the TPY limits shall be based on a 12-month rolling total.
- g. EU C-80018 shall be equipped with a permanent (non-removable) identification such as a serial number or another acceptable form of identification.
- h. Placement of EU C-80018 shall be limited to the north end of the FCCU area.  
[OAC 252:100-3]
- i. Replacement (including temporary periods of 6 months or less for maintenance purposes), of the internal combustion engine associated with the Instrument/Plant Air Compressor with an engine of lesser or equal emissions of each pollutant (in lbs/hr and TPY) are authorized under the following conditions:

- i. The permittee shall notify AQD in writing not later than 7 days in advance of the start-up of the replacement engine. Said notice shall identify the equipment removed and shall include the new engine make, model, and horsepower; date of the change, fuel usage, stack flow (ACFM), stack temperature (°F), stack height (feet), stack diameter (inches), and pollutant emission rates (g/hp-hr, lbs/hr, and TPY) at maximum rated horsepower for the altitude/location and any change in emissions.
- ii. Replacement equipment and emissions are limited to equipment and emissions which do not subject the engine to an applicable requirement not already included in this permit.
- iii. The permittee shall calculate the net emissions increase resulting from the replacement to document that it does not exceed significance levels and submit the results with the notice required above. [OAC 252:100-8-6 (f)]

**EUG 24** SRU Molten Sulfur Storage & Loading Subject to OAC 252:100-31-26: EU MSLA-520, LR-SB001, and SSP-520. EU SSP-520 is vented to the SRU incinerator or to the front end of the SRU and are incorporated into that limit as SO<sub>2</sub>.

EU	Point	Description
MSLA-520	P75	#1 SRU Sulfur Railcar Loading Rack
LR-SB001	P76	#2 SRU Sulfur Railcar Loading Rack
SSP-520	P77	#1 SRU Sulfur Storage Pit

- a. These EU are subject to OAC 252:100-31-26 and shall comply with all applicable provisions including but not limited to: [OAC 252:100-31-26]
  - i. Emissions of H<sub>2</sub>S shall not exceed 0.3 lb/hr based on a 2-hour average. Compliance shall be determined using the maximum actual loading rate and the H<sub>2</sub>S concentration of the gases coming from the loading operation. The H<sub>2</sub>S concentration shall be determined at least once monthly using stain tubes.
  - ii. If emissions are determined to be greater than 0.3 lb/hr, the H<sub>2</sub>S from any new petroleum or natural gas process equipment shall be removed from the exhaust gas stream or it shall be oxidized to sulfur dioxide. H<sub>2</sub>S emissions shall be reduced by a minimum of 95% of the H<sub>2</sub>S in the exhaust gas. [OAC 252:100-31-26(a)(1)]
  - iii. All new thermal devices for petroleum and natural gas processing facilities regulated under OAC 252:100-31-26(a)(1) shall have installed, calibrated, maintained, and operated an alarm system that will signal noncombustion of the gas. [OAC 252:100-31-26(c)]

**EUG 25** Continuous Catalyst Regeneration Vent (CCR) Subject to OAC 252:100-19 & 35 & NESHAP, Subpart UUU: EU CCR.

EU	Point	Description
CCR	P78	Platformer CCR

Emission limits and standards for EU CCR:

	NO <sub>x</sub>		CO	
EU	lb/hr	TPY	lb/hr	TPY
CCR	1.2	5.2	0.4	1.9

- a. The CCR shall be operated in full combustion regeneration mode to reduce emissions of CO. Emissions of CO shall not exceed 0.44 lb/hr. [OAC 252:100-35-2(b)]
  - i. At least once per calendar quarter, the permittee shall conduct tests of CO emissions in the exhaust gases from the CCR when operating under representative conditions. CO Draeger Tubes or an equivalent method approved by AQD may be used for testing. Flow rates shall be based on process operating parameters at the time of the test. When four consecutive quarterly tests show compliance with the CO emission limit, the testing frequency may be reduced to semi-annual testing. A semi-annual test may be conducted no sooner than 60 calendar days nor later than 180 calendar days after the most recent test. Likewise, when the following two consecutive semi-annual tests show compliance, the testing frequency may be reduced to annual testing. An annual test may be conducted no sooner than 120 calendar days nor later than 365 calendar days after the most recent test. Upon any showing of non-compliance with emissions limitations, the testing frequency shall revert to quarterly.
- b. The sulfur content of the Platformer feed shall not exceed 5% by weight based on a 12-month rolling average. [OAC 252:100-8-6(a)(1)]
- c. EU CCR is subject to NESHAP, Subpart UUU and shall comply with all applicable including but not limited to: [40 CFR Part 63, Subpart UUU]
  - i. § 63.1560 What is the purpose of this subpart?
  - ii. § 63.1561 Am I subject to this subpart?
  - iii. § 63.1562 What parts of my plant are covered by this subpart?
  - iv. § 63.1563 When do I have to comply with this subpart?
  - v. § 63.1566 What are my requirements for organic HAP emissions from catalytic reforming units?
  - vi. § 63.1567 What are my requirements for inorganic HAP emissions from catalytic reforming units?
  - vii. § 63.1569 What are my requirements for HAP emissions from bypass lines?
  - viii. § 63.1570 What are my general requirements for complying with this subpart?
  - ix. § 63.1572 What are my monitoring installation, operation, and maintenance requirements?
  - x. § 63.1574 What notifications must I submit and when?
  - xi. § 63.1575 What reports must I submit and when?
  - xii. § 63.1576 What records must I keep, in what form, and for how long?
  - xiii. § 63.1577 What parts of the General Provisions apply to me?
- d. Compliance with the emission limits shall be based on the maximum catalyst recirculation rate, a coke combustion rate of 7% of the catalyst processing rate, and the following emissions factors: AP-42 (1/95), Section 1.1, for sub-bituminous coal combustion: NO<sub>x</sub> - 34 lb/ton of coke combusted (Pulverized coal fired, wet bottom); CO - 5 lb/ton of coke combusted (Spreader Stoker). Actual performance test and unit operating data may be

substituted for the foregoing to demonstrate compliance. Compliance with the TPY limits shall be based on a 12-month rolling total and calculated monthly. Alternative methods to ensure compliance shall be approved by AQD prior to use.

**EUG 26** FCCU Catalyst Hopper Vent Subject to OAC 252:100-19: EU cat\_hop.

EU	Point	Description
cat_hop	P79	FCCU Catalyst Hopper Vent

- a. EU cat\_hop shall be vented through a cyclone and then to the FCCU WS (FGS-200) or another equally effective control device. [OAC 252:100-8-34]

**EUG 27** Wastewater Treatment Plant (WWTP) Regenerative Thermal Oxidizer (RTO) Subject to OAC 252:100-19, NSPS, Subpart J, & NESHAP Subpart FF: EU HI-8801.

EU	Point	Description
HI-8801	P80	WWTP Incinerator

Emission limits and standards for EU HI-8801:

	NO <sub>x</sub>		CO		SO <sub>2</sub>		VOC	
EU	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY	lb/hr	TPY
HI-8801	8.9	39.0	1.3	5.7	5.8	25.5	2.2	9.7

- a. EU HI-8801 is subject to NSPS, Subpart J and shall comply with all applicable provisions including but not limited to: [40 CFR Part 60, Subpart J]
- § 60.104 Standards for sulfur dioxide – (a)(1)
  - § 60.105 Monitoring of operations – (a)(4), (e)(3)(ii)
  - § 60.106 Test methods and procedures – (e)
- b. All off-gases from the WWTP Bioreactors shall be combusted by a properly operated and maintained thermal oxidizer.
- c. The temperature of the combustion zone in the Thermal Oxidizer of EU HI-8801 shall not drop below 1,400 °F based on a three hour rolling average.
- d. The permittee shall continuously monitor and record the temperature of the combustion zone of the Thermal Oxidizer of EU HI-8801 (daily average).
- e. EU HI-8801 shall not process more than 198,000 SCF/hr of waste gas based on a weekly or monthly average as specified in accordance with paragraph (h) as determined by site-specific parametric association of waste-gas generation as a function of air flow rate into the bioreactors.
- f. The ammonia concentration of the waste gases vented to the WWTP Incinerator shall not exceed 315 ppmv based on a weekly or monthly average as specified in accordance with paragraph (g).

- g. The facility shall determine and record monthly the ammonia concentration and flow of the waste gases vented to the WWTP Incinerator. If three consecutive monthly tests are in compliance with the ammonia and flow limitations, the testing and calculation frequency may be reduced to quarterly testing and calculations. Upon any showing of non-compliance with the ammonia concentration or flow limitations, the testing and calculation frequency shall revert to monthly.
- h. Compliance with the emission limitations shall be based on the fuel and waste gas combustion, fuel and waste gas heat content, waste gas ammonia concentrations, and the emission factors used to calculate emissions indicated above. Actual performance test and unit operating data may be substituted for the foregoing to demonstrate compliance. Compliance with the TPY limits shall be based on a 12-month rolling total and calculated monthly. Alternative methods to ensure compliance shall be approved by AQD prior to use.
- i. Compliance with the lb/hr limits shall be based on the maximum rated auxiliary fuel flow (MMBTUH - HHV), the waste gas flow rate (SCFH) and heat content (BTU/lb), the measured nitrogen content (ppmdv), an H<sub>2</sub>S concentration of supplemental fuel gas of 0.1 grain/DSCF and a combustion efficiency of 95%, and the emissions factors from AP-42, Section 1.4 (7/98), except for NO<sub>x</sub>, which shall be based on an emission factor of 0.12 lb/MMBTU. Actual performance test and unit operating data may be substituted for the foregoing to demonstrate compliance. Alternative methods to ensure compliance shall be approved by AQD prior to use.

**EUG 28** Alkylate/Gasoline Railcar Loading Station Subject to NESHAP, Subpart CC: EU RCALOAD 900.

EU	Point	Description
RCALOAD 900	P81	Alkylate/Gasoline Railcar Loading Station

- a. All emissions from the Alkylate/Gasoline Railcar Loading Station shall be vented through the Asphalt Blowstill Incinerator (HI-801) or the Wastewater Treatment Plant Regenerative Thermal Oxidizer (HI-8801).
- b. The amount of material loaded at the Alkylate/Gasoline Railcar Loading Station shall not exceed 15,000 gallons/hr based on a daily average or 733,505 bbl/year based on a 12-month rolling total, calculated monthly. The permittee shall record the type and amount of material loaded at the Alkylate/Gasoline Railcar Loading Station daily and monthly and calculate the 12-month rolling total, monthly. [OAC 252:100-8-6(a)(1)]
- c. The Alkylate/Gasoline Railcar Loading Station is subject to NESHAP, 40 CFR Part 63, Subpart CC and shall comply with all applicable requirements. [40 CFR 63, NESHAP, Subpart CC]
  - i. § 63.642 General Standards.
  - ii. § 63.650 Gasoline Loading Rack Provisions.
  - iii. § 63.654 Reporting and Recordkeeping Requirements.

**EUG 29** LPG Loading & Unloading: EU LPG-RC-UNLOAD, LPG-TT-UNLOAD, LPG-RC-LOAD, and LPG-TT-LOAD.

EU	Point	Description
LPG-RC-UNLOAD	P82	Railcar LPG Unloading
LPG-TT-UNLOAD	P83	Tank Truck LPG Unloading
LPG-RC-LOAD	P84	Railcar LPG Loading
LPG-TT-LOAD	P85	Tank Truck LPG Loading

Emissions limits for LPG Loading & Unloading:

	VOC
Station (EU)	TPY
Railcar Loading (LPG)	34.5
Tank Truck Loading (LPG)	
Unloading (LPG)	

- a. The permittee shall record the amount of LPG loaded monthly. [OAC 252:100-8-6(a)(1)]
- b. Compliance with the emission limits shall be based on an emission factor of 3.74 lb VOC/disconnect except for loading of propane into tank trucks where a factor of 13.5 lb/disconnect shall be used. Compliance with the VOC emission limit shall be based on a 12-month rolling total and shall be calculated monthly. Alternative methods to ensure compliance may be approved by AQD.

**EUG 30** Asphalt and No. 6 Fuel Oil Railcar and Tank Truck Loading: EU AsRail and As Truck.

EU	Point	Description	# Arms
ASPHALT-RC-LOAD	P86	Asphalt & No. 6 Fuel Oil Railcar Loading	5
ASPHAL-TT-LOAD	P87	Asphalt & No. 6 Fuel Oil Truck Loading	7

Emissions limits and standards for Asphalt and No. 6 Fuel Oil Railcar and Tank Truck Loading:

	VOC
EU	TPY
ASPHALT-RC-LOAD	16.69
ASPHAL-TT-LOAD	

- a. The permittee shall record the amount of asphalt and No. 6 fuel oil loaded at these EU monthly. [OAC 252:100-8-6(a)(1)]
- b. The temperature of the asphalt loaded shall not equal or exceed 500 °F. [OAC 252:100-8-6(a)(1)]



- c. The temperature of the asphalt in the storage vessels from which the asphalt is being loaded shall be measured and recorded at least once a day during those days that asphalt is loaded from those storage vessels. [OAC 252:100-8-6(a)(3)]
- d. Compliance with the emission limits shall be based on AP-42 (1/95), Section 5.2 and the actual throughputs or using other methods approved by the AQD. Compliance with the VOC emissions limit shall be based on a 12-month rolling total and shall be calculated monthly. Alternative methods to ensure compliance may be approved by AQD.

**EUG 31** Fugitive Equipment Leaks Subject to LDAR Programs NSPS, Subpart GGG & NESHAP, Subpart CC. Fugitive equipment items do not have specific limitations, except to comply with the applicable LDAR programs.

EU	Point	Description
LDAR 100A	F19	Area 100 (1 of 4) - Crude Unit
LDAR 100B	F20	Area 100 (2 of 4) - Crude Unit MEROX
LDAR 100C	F21	Area 100 (3 of 4) - Asphalt Blowstill Unit
LDAR 100D	F22	Area 100 (2 of 4) - Vent Gas Recovery & Compressors
LDAR 200	F23	Area 200 - Unsat Gas Unit
LDAR 250	F24	Area 250 - Olefin Unit
LDAR 300	F25	Area 300 - Sat Gas Unit
LDAR 400	F26	Area 400 - NHT & Reforming Unit
LDAR 450	F27	Area 450 - ISOM Unit
LDAR 520	F28	Area 520 - SCOT, TGTU & ARU
LDAR 550	F29	Area 550 - Fuel Gas Amine Unit
LDAR 570	F30	Area 570 - #2 TGTU
LDAR 600	F31	Area 600 - DHDS Unit
LDAR 650	F32	Area 650 - CFHT Unit
LDAR 670	F33	Area 670 - Hydrocracker/Co-Processor Unit
LDAR 700	F34	Area 700 & 720 - Plant MEROX Unit
LDAR 800	F35	Area 800 - Plant Utilities System & Caustic Unit
LDAR 810	F36	Area 810 - East & West Flare System
LDAR 880	F37	Area 880 – WWTP
LDAR 900	F38	Area 900 - Alkylation Unit
LDAR 950	F39	Area 950 - C3/C4 Splitter Unit
LDAR 2100	F40	Area 2100 - PMA Unit
LDAR LPLT	F41	Light Product Loading Terminal
LDAR Rail LPGU	F42	Railcar LPG Unloading Station
LDAR Truck LPGU	F43	Tank Truck LPG Unloading Station
LDAR Rail LPGL	F44	Railcar LPG Loading Station
LDAR Truck LPGL	F45	Tank Truck LPG Loading Station

EU	Point	Description
LDAR Rail Asphalt	F46	Railcar Asphalt Loading Station
LDAR Truck Asphalt	F47	Asphalt Tank Truck Loading Station
LDAR Truck Crude	F48	Tank Truck Crude Oil Unloading Station
LDAR Alkylate	F49	VOC Railcar Loading Station
LDAR Tank farm	F50	Tank Farm Area

- a. All affected equipment, in HAP service (contacting >5% by weight HAP), shall comply with NESHAP, 40 CFR Part 63, Subpart CC. The permittee shall comply with the applicable sections for each affected component including but not limited to:  
[40 CFR Part 63, Subpart CC]
- § 63.642 General Standards – (c), (d)(1), (e), & (f);
  - § 63.648 Equipment Leak Standards – (a), (b), (c), & (e-i);
  - § 63.654 Reporting and Recordkeeping Requirements – (d), & (f-h).
- b. Equipment determined not to be in HAP service (contacting <5% by weight HAP), which was constructed, reconstructed, or modified after January 4, 1983, and on or before November 7, 2007, and is in VOC service (contacting >10% by weight VOC) shall comply with the requirements of NSPS 40 CFR Part 60, Subpart GGG including but not limited to:  
[40 CFR Part 60, Subpart GGG]
- §60.592 Standards (a-e);
  - §60.593 Exceptions (a-e).
- c. Equipment determined not to be in HAP service (contacting <5% by weight HAP), which was constructed, reconstructed, or modified after November 7, 2007, and which is in VOC service (contacting >10% by weight VOC) shall comply with the requirements of NSPS 40 CFR Part 60, Subpart GGG including but not limited to: [40 CFR Part 60, Subpart GGGa]
- §60.592a Standards (a-e);
  - §60.593a Exceptions (a-e).

**EUG 32** Fugitive Equipment Leaks Subject to NSPS, Subpart GGG LDAR Program. Fugitive equipment items do not have specific limitations, except to comply with the applicable LDAR programs.

EU	Point	Description
LDAR 150	F51	Area 150 – Hydrogen Unit
LDAR 500	F52	Area 500 - #1 SRU
LDAR 560	F53	Area 560 - #2 SRU
LDAR 580	F54	Area 580 - #2 ARU
LDAR 820	F55	Area 820 - #1 SWS
LDAR 830	F56	Area 830 - #2 SWS
LDAR 860	F57	Area 860 - Instrument Air System

- a. Equipment which was constructed, reconstructed, or modified after January 4, 1983, and on or before November 7, 2007, and is in VOC service (contacting >10% by weight VOC) shall comply with the requirements of NSPS 40 CFR Part 60, Subpart GGG including but not limited to: [40 CFR Part 60, Subpart GGG]
- i. §60.592 Standards (a-e);
  - ii. §60.593 Exceptions (a-e).
- b. Equipment which was constructed, reconstructed, or modified after November 7, 2007, and which is in VOC service (contacting >10% by weight VOC) shall comply with the requirements of NSPS 40 CFR Part 60, Subpart GGG including but not limited to: [40 CFR Part 60, Subpart GGGa]
- i. §60.592a Standards (a-e);
  - ii. §60.593a Exceptions (a-e).

**EUG 33** Wastewater Plant QQQ Fugitive Sources Subject to NSPS, Subpart QQQ, LDAR Program. Fugitive equipment items do not have specific limitations, except to comply with the applicable LDAR programs.

EU	Point	Description
QQQ 100 (1 of 4)	F58	Area 100 (1 of 4) - Crude Unit
QQQ 100 (2 of 4)	F59	Area 100 (2 of 4) - Crude Unit MEROX
QQQ 100 (3 of 4)	F60	Area 100 (3 of 4) - Asphalt Blowstill Unit
QQQ 100 (4 of 4)	F61	Area 100 (4 of 4) - Vent Gas Recovery & Compressors
QQQ 150	F62	Area 150 - Hydrogen Unit
QQQ 200	F63	Area 200 - Unsat Gas Unit
QQQ 250	F64	Area 250 - Olefin Unit
QQQ 300	F65	Area 300 - Sat Gas Unit
QQQ 400	F66	Area 400 - NHT & Reforming Unit
QQQ 450	F67	Area 450 - ISOM Unit
QQQ 500	F68	Area 500 - #1 SRU
QQQ 520	F69	Area 520 - SCOT, TGTU & ARU
QQQ 550	F70	Area 550 - Fuel Gas Amine Unit
QQQ 560	F71	Area 560 - #2 SRU
QQQ 570	F72	Area 570 - #2 TGTU
QQQ 580	F73	Area 580 - #1 ARU
QQQ 600	F74	Area 600 - DHDS Unit
QQQ 650	F75	Area 650 - CFHT Unit
QQQ 670	F76	Area 670 - Hydrocracker/Co-Processor Unit
QQQ 700	F77	Area 700 & 720 - Plant MEROX Unit
QQQ 800	F78	Area 800 - Plant Utilities System & Caustic Unit
QQQ 810	F79	Area 810 - West Flare System
QQQ 820	F80	Area 820 - #1 SWS

EU	Point	Description
QQQ 830	F81	Area 830 - #2 SWS
QQQ 880 (1 of 2)	F82	Area 880 - WWTP
QQQ 880 (2 of 2)	F83	Area 880 - ILS
QQQ 900	F84	Area 900 - Alkylolation Unit
QQQ 950	F85	Area 950 - C3/C4 Splitter Unit
QQQ 2100	F86	Area 2100 - PMA Unit
QQQ LPLT	F87	Light Product Loading Terminal
QQQ Tank Farm	F88	Tank Farm
QQQ STG	F89	FCCU Steam Turbine Generators
QQQ WGS	F90	FCCU Flue Gas Scrubber
QQQ WHSE	F91	WHSE Yard
QQQ Bundle Pads	F92	Bundle Pads

- a. All affected equipment shall comply with NSPS, 40 CFR Part 60, Subpart QQQ. The permittee shall comply with the applicable sections for each affected component including but not limited to: [40 CFR Part 60, NSPS, Subpart QQQ]
- i. § 60.692–1 Standards: General.
  - ii. § 60.692–2 Standards: Individual drain systems.
  - iii. § 60.692–3 Standards: Oil-water separators.
  - iv. § 60.692–4 Standards: Aggregate facility.
  - v. § 60.692–5 Standards: Closed vent systems and control devices.
  - vi. § 60.692–6 Standards: Delay of repair.
  - vii. § 60.692–7 Standards: Delay of compliance.
  - viii. § 60.693–1 Alternative standards for individual drain systems.
  - ix. § 60.693–2 Alternative standards for oil-water separators.
  - x. § 60.695 Monitoring of operations.
  - xi. § 60.696 Performance test methods and procedures and compliance provisions.
  - xii. § 60.697 Recordkeeping requirements.
  - xiii. § 60.698 Reporting requirements.

**EUG 34** Miscellaneous Process Vents (MPV) Subject to NESHAP, Subpart CC. These MPV do not have specific limitations, except to comply with the applicable requirements of the NESHAP.

EU	Point	MPV Vented to Flares or Other Control Devices
G1 MPV PCV104034A	P88	Vent Gas Compressors [C-10006(A-C)] Suction Pressure Control
G1 MPV PCV104034B	P89	Vent Gas Compressors [C-10006(A-C)] Discharge Drum V-10124 Pressure Control
G1 MPV PCV5417	P90	Light Naphtha Re-contactor (T-113) Pressure Control
G1 MPV HV2527	P91	FCCU Debutanizer (T-205) Pressure Control
G1 MPV PCV824030B	P92	#1 SWS (T-82001) Pressure Control

EU	Point	MPV Vented to Flares or Other Control Devices
G1 MPV PCV834051B	P93	#2 SWS (T-83001) Pressure Control
G1 MPV HV9507	P94	Alky Isostripper Receiver (V-903) Pressure Control Through KOH Scrubber (T-901)
G1 MPV PSE94139	P95	Alky CBM Surge Drum (V-923) Pressure Control Through KOH Scrubber (T-901)
G1 MPV HV9501	P96	Alky Depropanizer (V-905) Pressure Control Through KOH Scrubber (T-901)
G1 MPV PCV14071	P97	Crude Unit Fractionator Overhead Receiver (V-120) Pressure Control
G1 MPV PCV154013	P98	Hydrogen Unit (V-1501 through V-1510) PSA Offgas Pressure Control
G1 MPV PCV154007	P99	Hydrogen Unit Cold Separator (V-15003) Pressure Control
G1 MPV PCV154009	P100	Hydrogen Unit (V-1501 through V-1510) Hydrogen Offgas Pressure Control
G1 MPV PCV2401B	P101	FCCU Feed Surge Drum (V-201) Pressure Control
G1 MPV PV2436	P102	FCCU Fractionator Overhead Receiver (V-203) Pressure Control
G1 MPV PCV3502	P103	Sat Gas DIB Fractionator Overhead Receiver (V-304) Pressure Control
G1 MPV PCV3411B(I)	P104	Sat Gas Debutanizer Feed Surge Drum (V-305) Pressure Control
G1 MPV BV9(I)	P105	CCR Lock Hopper No. 1 (V-418) Purge Control (I)
G1 MPV BV9A(I)	P106	CCR Lock Hopper No. 1 (V-418) Purge Control (II)
G1 MPV BV49(I)	P107	CCR Lock Hopper No. 2 (V-424) Purge Control (I)
G1 MPV BV49A(I)	P108	CCR Lock Hopper No. 2 (V-424) Purge Control (II)
G1 MPV BV49(II)	P109	CCR Vent Drum No. 1 (V-428) Purge Control (I)
G1 MPV BV44(I)	P110	CCR Vent Drum No. 1 (V-428) Purge Control (II)
G1 MPV BV44(II)	P111	CCR Vent Drum No. 2 (V-429) Purge Control
G1 MPV BV4	P112	CCR Vent Drum No. 3 (V-432) Purge Control
G1 MPV BV15	P113	CCR Vent Drum No. 4 (V-433) Purge Control
G1 MPV PCV4438B (I)	P114	NHT Feed Surge Drum (V-439) Pressure Control
G1 MPV V454	P115	ISOM Desiccant Dryers [V-454 (A & B)] Purge Control
G1 MPV PCV5302	P116	#1 SRU Amine Regenerator Overhead Receiver (V-501) Pressure Control
G1 MPV PCV58448	P117	#2 SRU Amine Regenerator Overhead Receiver (V-5802) Pressure Control
G1 MPV PCV6418A	P118	DHDS Feed Surge Drum (V-608) Pressure Control
G1 MPV PCV64235	P119	DHDS Fractionator Overhead Receiver (V-623) Pressure Control
G1 MPV PCV64505	P120	CFHT Fractionator Overhead receiver (V-6511) Pressure Control

EU	Point	MPV Vented to Flares or Other Control Devices
G1 MPV PCV6514165	P121	CFHT recycle Gas Cyclone Separator (V-6514) Pressure Control (I)
G1 MPV PCV6514166	P122	CFHT recycle Gas Cyclone Separator (V-6514) Pressure Control (II)
G1 MPV FI32552	P123	MEROX De-Sulfide Settler (V-732) Purge Control
G1 MPV PCV8415B	P124	General Refinery Fuel Gas Drum (V-804) Pressure Control
G1 MPV BV9(II)	P125	Reformer Recycle Gas Coalescer (Z-402) Purge Control (I)
G1 MPV BV9A(II)	P126	Reformer Recycle Gas Coalescer (Z-402) Purge Control (II)
G1 MPV BV49(III)	P127	Reformer Booster Gas Coalescer (Z-404) Purge Control (I)
G1 MPV BV49A(II)	P128	Reformer Booster Gas Coalescer (Z-404) Purge Control (II)
G1 MPV PCV654585	P129	CFHT Flare Header Fuel Gas Purge Control (I)
G1 MPV PCV654586	P130	CFHT Flare Header Fuel Gas Purge Control (II)
G1 MPV PCV674060	P131	Hydrocracker Flare Header Fuel Gas Purge Control
G1 MPV PCV64719	P132	DHDS High Pressure Drain Drum (V-627) Pressure Control
G1 MPV PCV56463	P133	#2 SRU Hot Oil Heater Surge Drum (V-5604) Fuel Gas Purge Control
G1 MPV PCV2458	P134	FCCU Flare Header Fuel Gas Purge Control
G1 MPV FI58221	P135	#2 ARU Flare Header Fuel Gas Purge Control
G1 MPV FI56209	P136	#2 SRU Flare Header Fuel Gas Purge Control
G1 MPV 3451B(II)	P137	Sat Gas Debutanizer Overhead Receiver (V-301) Pressure Control

- a. All affected equipment shall comply with NESHAP, 40 CFR Part 63, Subpart CC. The permittee shall comply with the applicable sections for each affected component including but not limited to: [40 CFR Part 63, Subpart CC]
- § 63.642 General Standards - (c-g), (i), (k), & (l);
  - §63.643 Miscellaneous process vent provisions - (a & b);
  - §63.644 Monitoring provisions for miscellaneous process vents - (a - e);
  - §63.645 Test methods and procedures for miscellaneous process vents - (a-h);
  - §63.652 Emissions averaging provisions.
  - §63.653 Monitoring, recordkeeping, and implementation plan for emissions averaging.
  - § 63.654 Reporting and Recordkeeping Requirements - (e-i).

**EUG 35** Sources Vented to the Fuel Gas Recovery System (FGRS). These sources are not MPV because they are relieved to the FGRS.

EU	Point	Sources Vented to FGRS
G1MPV FE102014	P138	Vacuum Tower Hotwell (V-105)
G1MPV FE102021	P139	Vent Gas Recovery Compressor Discharge Drum (V-10124)
G1MPV V10123	P140	Hotwell Compressor Discharge Drum (V-10123)
G1MPV PCV2451	P141	FCCU Sponge Gas Absorber (T-204)

EU	Point	Sources Vented to FGRS
G1MPV PCV2452B	P142	FCCU Deethanizer Overhead Receiver (V-207)
G1MPV PCV3451	P143	Sat Gas Debutanizer Overhead Receiver (V-301)
G1MPV PCV3408	P144	Sat Gas Deethanizer Overhead Receiver (V-302)
G1MPV PV73	P145	NHT Stripper Overhead Receiver (V-402)
G1MPV PV36A	P146	NHT Stripper Cold Separator (V-436)
G1MPV PV6422	P147	DHDS Low Pressure Receiver (V-602)
G1MPV PV6463	P148	DHDS Stripper Overhead Receiver (V-622)
G1MPV FV652170	P149	CFHT Recycle Gas Amine Contactor Purge (T-6501)
G1MPV PV654410	P150	CFHT Cold Flash Drum (V-6510)
G1MPV PV654490	P151	CFHT Offgas After Cooler Receiver (V-6522)
G1MPV FE832016	P152	#2 SWS Overhead Receiver (V-83001)
G1MPV FE822019	P153	#1 SWS Overhead Receiver (V-82001)
G1MPV PV4434B (II)	P154	NHT Feed Surge Drum (V-439)
G1MPV PV64235	P155	DHDS Fractionator Overhead Receiver (V-623)
G1MPV PV3411A	P156	Sat gas Debutanizer Feed Surge Drum (V-305)
G1MPV PCV55423	P157	MDEA Rich Amine Flash Drum (V-55005)
G1MPV PV245	P158	Reformer Debutanizer Overhead Receiver (V-408)
G1MPV PV1608	P159	Reformer Net Gas Absorber Overhead (T-404)
G1MPV PV45448	P160	ISOM Net Gas Caustic Scrubber Overhead (T-452)
G1MPV PV55401	P161	Amine Unit Offgas Scrubber Overhead (V-553)
G1MPV PCV154009	P162	PSA Excess Hydrogen (V-1501 through V-1510)
G1MPV PCV9477	P163	PSA Excess Hydrogen (V-1501 through V-1510)
G1MPV PV9447	P164	Propane Scrubber Overhead (V-909 & V-910)
G1MPV PV904321	P165	Dehydrator feed Surge Drum (V-924)
G1MPV PCV8412	P166	Reformer Fuel Gas Drum (V-412)
G1MPV PV14708	P167	Hotwell Compressor Separator (V-10123)
G1MPV PCV152012	P168	PSA Offgas (V-1501 through V-1510)
GII MPV V150004	P169	Hydrogen Unit Deaerator Vent (V-150004)
PMA SCRUB VENT	P170	PMA Unit Storage Tanks Nitrogen Blanket Scrubber Vent
G1MPV PV604121	P171	DHDS Stripper Overhead Receiver Vent #2

- a. All affected equipment shall be routed to a fuel gas system.
  - i. *Fuel gas system* means the offsite and onsite piping and control system that gathers gaseous streams generated by refinery operations, may blend them with sources of gas, if available, and transports the blended gaseous fuel at suitable pressures for use as fuel in heaters, furnaces, boilers, incinerators, gas turbines, and other combustion devices located within or outside of the refinery. The fuel is piped directly to each individual combustion device, and the system typically operates at pressures over atmospheric. The gaseous streams can contain a mixture of methane, light hydrocarbons, hydrogen and other miscellaneous species.
  - ii. No testing, monitoring, recordkeeping, or reporting is required for refinery fuel gas systems or emission points routed to refinery fuel gas systems.
  - iii. Additional sources may be vented to the fuel gas system at any time.

**EUG 36 Startup, Shutdown, and Maintenance (SSM) Activities**

The nature of refining operations requires certain activities that are outside normal continuous operations. These activities result in air emissions that exceed the emission rate of normal operations.

Point	Activity
P65	FCCU Startup
P65	FCCU Shutdown
P59	CHFT & Hydrocracker Shutdown
P58	C-114 Shutdown
P58 & P59	Misc. Refinery Unit Start Up
P58 & P59	Misc. Refinery Unit Shut Down
Fugitive	Refinery Turnaround Depressurization (Fugitive)
Fugitive	Tank degassing, changes in service, maintenance

**Startup, Shutdown, and Maintenance (SSM) Emissions (Tons) per Event**

Event (Release Point)	CO	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	VOC	H <sub>2</sub> S	HF
FCCU Startup (P64)	1.90	NA	NA	NA	NA	NA	NA
FCCU Shutdown (P64)	1.40	0.40	NA	NA	NA	NA	NA
CHFT & Hydrocracker Shutdown (P59)	0.50	0.08	0.25	NA	NA	NA	NA
C-104 Shutdown (P58)	0.50	0.08	0.25	NA	NA	NA	NA
Misc. Refinery Unit Start Up (P58 & P59)	0.40	0.06	0.25	0.10	0.12	NA	NA
Misc. Refinery Unit Shut Down (P58 & P59)	0.40	0.06	0.25	0.10	0.12	NA	NA
Refinery Turnaround Depressurization (Fugitive)	NA	NA	NA	NA	36.0	0.10	0.05
Tank degassing, changes in service, maintenance	NA	NA	NA	NA	2.00	0.03	NA

\* These emissions do not include insignificant or trivial activities.

**Insignificant Activities (ISA)**

PMA Unit Polymer Unloading & Storage Silos

Company Vehicle/Equipment Fueling Station

RCRA North Yard Bin Storage Area

DHDS Catalyst Change-Out Area

CFHT Catalyst Change-Out Area

Hydrocracker Catalyst Change-Out Area

SRU Catalyst Change-Out Area

NHT Catalyst Change-Out Area

Reformer Catalyst Change-Out Area

ISOM Catalyst Change-Out Area



**ISA Continued**

East Bundle Pad

West Bundle Pad

Tank Truck Crude Oil Unloading Station

Other sources/equipment meeting definition of ISA in OAC 252:100-8-2

**Storage Vessels that Qualify as Insignificant Activities/Trivial Activities**

<b>EU</b>	<b>Contents</b>	<b>Barrels</b>
T-451	Perchloroethylene	320
T-551	MDEA	91
T-811	Spent Caustic	1,007
T-812	Spent Caustic	1,007
T-813	Spent Caustic	1,007
T-814	Spent Caustic	1,007
T-8803	RCRA Remediation Trench Oil/Water	202
T-8804	RCRA Remediation Trench Oil	202
T-210001	Polymer Asphalt	19
T-210002	10 % H <sub>3</sub> PO <sub>4</sub>	9,517
TK-13005	Fuel Additives	49
TK-13007	Fuel Additives	49
TK-13008	Fuel Additives	49
TK-13009	Fuel Additives	49
V-523	Amine	91
V-815	Wastewater Centrifuge Solids	1,731
V-818	Slop Oil	444
JFP1	Refinery Vehicle Refueling Gasoline	52
JFP2	Refinery Vehicle Refueling Red Dye	11
JFP3	Refinery Vehicle Refueling Diesel (Off-Road)	22

**Trivial Activities (TA)**

South 40 WWTP Ponds

Treated Process Water Pond 002

Treated Process Water Pond 003

Treated Process Water Northwest Pond

Refinery Internal Firefighting Training Area

Maintenance Department Cutting/Grinding/Welding Activities

Chigger Hill Equipment Fabrication and De-Commissioning/Lay Down Yard

Warehouse Yard Bulk-Chemical/Tote/Cylinder/Drum Storage Yard

Light Product Loading Terminal Fuel Additive Storage Totes/Tanks

CFHT Cooling Tower

Alky Cooling Tower

Ceramic Cooling Tower

Steam Turbine Generators Cooling Tower

**TA Continued**

Aerosol Can Disposal Station

Gasoline blender QA/QC operations

QA/QC Laboratories

Land Treatment Unit

Other approved sources meeting definition of TA in OAC 252:100-8-2

3. All affected fuel-burning equipment shall be fired with natural gas or refinery fuel gas except for the diesel fired engines. [OAC 252:100-19]

4. The following records shall be maintained on-site to verify Insignificant Activities. No recordkeeping is required for those operations, which qualify as Trivial Activities.

[OAC 252:100-8-6 (a)(3)(B)]

a. For stationary reciprocating engines used exclusively for emergency power generation or for peaking power service: records of the size of engines, type of fuel used, and number of hours operated (annual).

b. For fluid storage tanks with a capacity of less than 39,894 gallons and a true vapor pressure less than 1.5 psia: records of the capacity of the tanks and the contents.

c. For activities (except for trivial activities) that have the potential to emit less than 5 TPY (actual) of any criteria pollutant: the type of activity and the amount of emissions or a surrogate measure of the activity (annual).

5. The Refinery is subject to NESHAP, 40 CFR Part 61, Subpart FF and all affected equipment shall comply with all applicable requirements.

[40 CFR Part 61, NESHAP, Subpart FF]

a. § 61.342 Standards: General.

b. § 61.343 Standards: Tanks.

c. § 61.344 Standards: Surface Impoundments.

d. § 61.345 Standards: Containers.

e. § 61.346 Standards: Individual drain systems.

f. § 61.347 Standards: Oil-water separators.

g. § 61.348 Standards: Treatment processes.

h. § 61.349 Standards: Closed-vent systems and control devices.

i. § 61.350 Standards: Delay of repair.

j. § 61.351 Alternative standards for tanks.

k. § 61.352 Alternative standards for oilwater separators.

l. § 61.353 Alternative means of emission limitation.

m. § 61.354 Monitoring of operations.

n. § 61.355 Test methods, procedures, and compliance provisions.

o. § 61.356 Recordkeeping requirements.

p. § 61.357 Reporting requirements.

6. Certain equipment within the refinery is subject to NESHAP, 40 CFR Part 63, Subpart CC and all affected equipment shall comply with all applicable requirements.

[40 CFR Part 63, NESHAP, Subpart CC]

- a. § 63.642 General Standards
- b. § 63.643 Miscellaneous Process Vent Provisions
- c. § 63.644 Monitoring for Miscellaneous Process Vents
- d. § 63.645 Test Methods and Procedures for Miscellaneous Process Vents
- e. § 63.646 Storage Vessel Provisions
- f. § 63.647 Wastewater Provisions
- g. § 63.648 Equipment Leak Standards
- h. § 63.652 Emission Averaging Provisions
- i. § 63.653 Monitoring, Recordkeeping, and Implementation Plan for Emissions Averaging
- j. § 63.654 Reporting and Recordkeeping Requirements
- k. The permittee shall comply with the provisions of 40 CFR Part 63 Subpart A as specified in Appendix to Subpart CC, Table 6.

7. Site remediation activities at the refinery are subject to NESHAP, 40 CFR Part 63, Subpart GGGGG and the refinery shall comply with all applicable requirements including but not limited to:

[40 CFR Part 63, NESHAP, Subpart GGGGG]

- a. Your site remediation is not subject to 40 CFR Part 63, Subpart GGGGG, except for the recordkeeping requirements specified in § 63.7881(c), if the site remediation meets the all of the conditions in .§ 63.7881(c)(1) through (3). [§ 63.7881(c)]
  - i. Before beginning site remediation, you shall determine, for the remediation material that you will excavate, extract, pump, or otherwise remove during your site remediation, that the total quantity of HAP listed in Table 1 of 40 CFR Part 63, Subpart GGGGG, which is contained in the material is less than 1 megagram per year (Mg/yr). [§ 63.7881(c)(1)]
  - ii. You shall prepare and maintain at your facility written documentation to support your determination of the total HAP quantity used to demonstrate compliance with § 63.7881(c)(1). This documentation must include a description of your methodology and data you used for determining the total HAP content of the material. [§ 63.7881(c)(2)]
  - iii. This exemption may be applied to more than one site remediation at your facility provided that the total quantity of the HAP listed in Table 1 of 40 CFR Part 63, Subpart GGGGG for all of your site remediations exempted under this provision is less than 1 Mg/yr. [§ 63.7881(c)(3)]

8. Unless 12 consecutive months of data has been collected to determine the 12-month rolling totals and averages applicable to the facility, the facility shall fill the missing data for the previous months with an estimated average monthly figure based on the applicable rolling total or average divided by 12. If there exists enough data to determine the values for the previous months, it can be used to determine the applicable 12-month rolling totals or averages.

[OAC 252:100-8-6(a)(3)]

9. The permittee shall maintain records as specified in Specific Condition 1 and 2 including but not limited to those listed below. These records shall be maintained on-site for at least five years after the date of recording and shall be provided to regulatory personnel upon request.

[OAC 252:100-43]

- a. Records showing compliance with 12-month rolling totals (monthly) and 12-month rolling averages (daily and monthly) established in Specific Conditions 1 and 2.
- b. Records showing compliance with emission limits (monthly) established in Specific Conditions 1 and 2.
- c. MTVP or VP for EUG 1 through 6 (as applicable).
- d. Temperature of materials stored in T-153 & T-156 (daily).
- e. Heater fuel usage (monthly) and heat content (quarterly) for EUG 10 & 11.
- f. Waste gas per barrel of asphalt for EUG 17 (quarterly).
- g. Throughput and temperatures for EUG 17 (daily).
- h. Throughputs for EUG 18 and 28 (daily and monthly).
- i. The FCCU NO<sub>x</sub>, CO, and SO<sub>2</sub> CEM data, annual emissions, average concentration, and average stack flow (monthly).
- j. The FCCU WGS liquid flow rate, gas flow rate and temperature, liquid to gas ratio, pressure drop, and pH (24-hour averages).
- k. The hours of operation of the EU in EUG 21 and 23, and the reason for operation of EUG 21 (monthly and 12-month rolling totals).
- l. The diesel fuel sulfur content for EUG 21 and 23 (quarterly).
- m. The throughput of EU SSP-520 (daily) and the H<sub>2</sub>S concentration of the gases from the loading operation (monthly).
- n. The catalyst recirculation rate and the feedstock sulfur content of the CCR (quarterly).
- o. The CO emission testing for the CCR (quarterly or semi-annual).
- p. The cat\_hop WS liquid flow rate, gas flow rate and temperature, liquid to gas ratio, pressure drop, and pH (24-hour averages, if applicable).
- q. The WWTP Incinerator combustion zone temperature (daily).
- r. The flow rate and ammonia concentration of the WWTP being sent to the WWTP incinerator (monthly or quarterly).
- s. Temperature of the asphalt in the storage vessels from which asphalt is being loaded (daily).
- t. Visible emission observations (date, time, and reading).
- u. Records required by 40 CFR Part 60, NSPS, Subparts A, Db, Dc, Kb, J, GGG, GGGa, and QQQ, Part 61, NESHAP, Subparts A and FF, and Part 63, NESHAP, Subparts A, CC, UUU, and LLLLL.

10. When monitoring shows an exceedance of any of the limits of Specific Condition No. 1 or 2, the owner or operator shall comply with the provisions of OAC 252:100-9 for excess emissions where applicable. [OAC 252:100-9]

11. No later than 30 days after each anniversary date of the issuance of this permit, the permittee shall submit to Air Quality Division of DEQ, with a copy to the US EPA, Region 6, a certification of compliance with the terms and conditions of the Part 70 operating permit. [OAC 252:100-8-6 (c)(5)(A) & (D)]

12. This permit supercedes all previous Air Quality permits which are now null and void.

**MAJOR SOURCE AIR QUALITY PERMIT  
STANDARD CONDITIONS  
(January 24, 2008)**

**SECTION I. DUTY TO COMPLY**

A. This is a permit to operate / construct this specific facility in accordance with the federal Clean Air Act (42 U.S.C. 7401, et al.) and under the authority of the Oklahoma Clean Air Act and the rules promulgated there under. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

B. The issuing Authority for the permit is the Air Quality Division (AQD) of the Oklahoma Department of Environmental Quality (DEQ). The permit does not relieve the holder of the obligation to comply with other applicable federal, state, or local statutes, regulations, rules, or ordinances. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112]

C. The permittee shall comply with all conditions of this permit. Any permit noncompliance shall constitute a violation of the Oklahoma Clean Air Act and shall be grounds for enforcement action, permit termination, revocation and reissuance, or modification, or for denial of a permit renewal application. All terms and conditions are enforceable by the DEQ, by the Environmental Protection Agency (EPA), and by citizens under section 304 of the Federal Clean Air Act (excluding state-only requirements). This permit is valid for operations only at the specific location listed.[40 C.F.R. §70.6(b), OAC 252:100-8-1.3 &OAC 252:100-8-6(a)(7)(A) &(b)(1)]

D. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit. However, nothing in this paragraph shall be construed as precluding consideration of a need to halt or reduce activity as a mitigating factor in assessing penalties for noncompliance if the health, safety, or environmental impacts of halting or reducing operations would be more serious than the impacts of continuing operations. [OAC 252:100-8-6(a)(7)(B)]

**SECTION II. REPORTING OF DEVIATIONS FROM PERMIT TERMS**

A. Any exceedance resulting from an emergency and/or posing an imminent and substantial danger to public health, safety, or the environment shall be reported in accordance with Section XIV (Emergencies). [OAC 252:100-8-6(a)(3)(C)(iii)(I) & (II)]

B. Deviations that result in emissions exceeding those allowed in this permit shall be reported consistent with the requirements of OAC 252:100-9, Excess Emission Reporting Requirements. [OAC 252:100-8-6(a)(3)(C)(iv)]

C. Every written report submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F. [OAC 252:100-8-6(a)(3)(C)(iv)]

**SECTION III. MONITORING, TESTING, RECORDKEEPING & REPORTING**

A. The permittee shall keep records as specified in this permit. These records, including monitoring data and necessary support information, shall be retained on-site or at a nearby field office for a period of at least five years from the date of the monitoring sample, measurement, report, or application, and shall be made available for inspection by regulatory personnel upon request. Support information includes all original strip-chart recordings for continuous monitoring instrumentation, and copies of all reports required by this permit. Where appropriate, the permit may specify that records may be maintained in computerized form.

[OAC 252:100-8-6 (a)(3)(B)(ii), OAC 252:100-8-6(c)(1) & OAC 252:100-8-6(c)(2)(B)]

B. Records of required monitoring shall include:

- (1) the date, place and time of sampling or measurement;
- (2) the date or dates analyses were performed;
- (3) the company or entity which performed the analyses;
- (4) the analytical techniques or methods used;
- (5) the results of such analyses; and
- (6) the operating conditions existing at the time of sampling or measurement.

[OAC 252:100-8-6(a)(3)(B)(i)]

C. No later than 30 days after each six (6) month period, after the date of the issuance of the original Part 70 operating permit, the permittee shall submit to AQD a report of the results of any required monitoring. All instances of deviations from permit requirements since the previous report shall be clearly identified in the report. Submission of these periodic reports will satisfy any reporting requirement of Paragraph E below that is duplicative of the periodic reports, if so noted on the submitted report.

[OAC 252:100-8-6(a)(3)(C)(i) & (ii)]

D. If any testing shows emissions in excess of limitations specified in this permit, the owner or operator shall comply with the provisions of Section II (Reporting Of Deviations From Permit Terms) of these standard conditions.

[OAC 252:100-8-6(a)(3)(C)(iii)]

E. In addition to any monitoring, recordkeeping or reporting requirement specified in this permit, monitoring and reporting may be required under the provisions of OAC 252:100-43, Testing, Monitoring, and Recordkeeping, or as required by any provision of the Federal Clean Air Act or Oklahoma Clean Air Act.

[OAC 252:100-43]

F. Any document submitted in accordance with this permit shall be certified by a responsible official. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete." However, an exceedance report that must be submitted within ten days of the exceedance under Section II (Reporting Of Deviations From Permit Terms) or Section XIV (Emergencies) may be submitted without a certification, if an appropriate certification is provided within ten days thereafter, together with any corrected or supplemental information required concerning the exceedance.

[OAC 252:100-8-5(f), OAC 252:100-8-6(a)(3)(C)(iv), OAC 252:100-8-6(c)(1) & OAC 252:100-9-3.1(c)]

G. Any owner or operator subject to the provisions of New Source Performance Standards (“NSPS”) under 40 CFR Part 60 or National Emission Standards for Hazardous Air Pollutants (“NESHAPs”) under 40 CFR Parts 61 and 63 shall maintain a file of all measurements and other information required by the applicable general provisions and subpart(s). These records shall be maintained in a permanent file suitable for inspection, shall be retained for a period of at least five years as required by Paragraph A of this Section, and shall include records of the occurrence and duration of any start-up, shutdown, or malfunction in the operation of an affected facility, any malfunction of the air pollution control equipment; and any periods during which a continuous monitoring system or monitoring device is inoperative.

[40 C.F.R. §§60.7 & 63.10, 40 CFR Parts 61, Subpart A, & OAC 252:100, Appendix Q]

H. [Reserved]

I. The permittee of a facility that is operating subject to a schedule of compliance shall submit to the DEQ a progress report at least semi-annually. The progress reports shall contain dates for achieving the activities, milestones or compliance required in the schedule of compliance and the dates when such activities, milestones or compliance was achieved. The progress reports shall also contain an explanation of why any dates in the schedule of compliance were not or will not be met, and any preventive or corrective measures adopted. [OAC 252:100-8-6(c)(4)]

J. All testing must be conducted under the direction of qualified personnel by methods approved by the Division Director. All tests shall be made and the results calculated in accordance with standard test procedures. The use of alternative test procedures must be approved by EPA. When a portable analyzer is used to measure emissions it shall be setup, calibrated, and operated in accordance with the manufacturer’s instructions and in accordance with a protocol meeting the requirements of the “AQD Portable Analyzer Guidance” document or an equivalent method approved by Air Quality.

[OAC 252:100-8-6(a)(3)(A)(iv) & OAC 252:100-43]

K. The reporting of total particulate matter emissions as required in Part 7 of OAC 252:100-8 (Permits for Part 70 Sources), OAC 252:100-19 (Control of Emission of Particulate Matter), and OAC 252:100-5 (Emission Inventory), shall be conducted in accordance with applicable testing or calculation procedures, modified to include back-half condensables, for the concentration of particulate matter less than 10 microns in diameter (PM<sub>10</sub>). NSPS may allow reporting of only particulate matter emissions caught in the filter (obtained using Reference Method 5).

L. The permittee shall submit to the AQD a copy of all reports submitted to the EPA as required by 40 C.F.R. Part 60, 61, and 63, for all equipment constructed or operated under this permit subject to such standards. [OAC 252:100-8-6(c)(1) & OAC 252:100, Appendix Q]

#### SECTION IV. COMPLIANCE CERTIFICATIONS

A. No later than 30 days after each anniversary date of the issuance of the original Part 70 operating permit, the permittee shall submit to the AQD, with a copy to the US EPA, Region 6, a



certification of compliance with the terms and conditions of this permit and of any other applicable requirements which have become effective since the issuance of this permit. The compliance certification shall also include such other facts as the permitting authority may require to determine the compliance status of the source.

[OAC 252:100-8-6(c)(5)(A), (C)(v), & (D)]

B. The compliance certification shall describe the operating permit term or condition that is the basis of the certification; the current compliance status; whether compliance was continuous or intermittent; the methods used for determining compliance, currently and over the reporting period; and a statement that the facility will continue to comply with all applicable requirements.

[OAC 252:100-8-6(c)(5)(C)(i)-(iv)]

C. The compliance certification shall contain a certification by a responsible official as to the results of the required monitoring. This certification shall be signed by a responsible official, and shall contain the following language: "I certify, based on information and belief formed after reasonable inquiry, the statements and information in the document are true, accurate, and complete."

[OAC 252:100-8-5(f) & OAC 252:100-8-6(c)(1)]

D. Any facility reporting noncompliance shall submit a schedule of compliance for emissions units or stationary sources that are not in compliance with all applicable requirements. This schedule shall include a schedule of remedial measures, including an enforceable sequence of actions with milestones, leading to compliance with any applicable requirements for which the emissions unit or stationary source is in noncompliance. This compliance schedule shall resemble and be at least as stringent as that contained in any judicial consent decree or administrative order to which the emissions unit or stationary source is subject. Any such schedule of compliance shall be supplemental to, and shall not sanction noncompliance with, the applicable requirements on which it is based, except that a compliance plan shall not be required for any noncompliance condition which is corrected within 24 hours of discovery.

[OAC 252:100-8-5(e)(8)(B) & OAC 252:100-8-6(c)(3)]

## **SECTION V. REQUIREMENTS THAT BECOME APPLICABLE DURING THE PERMIT TERM**

The permittee shall comply with any additional requirements that become effective during the permit term and that are applicable to the facility. Compliance with all new requirements shall be certified in the next annual certification.

[OAC 252:100-8-6(c)(6)]

## **SECTION VI. PERMIT SHIELD**

A. Compliance with the terms and conditions of this permit (including terms and conditions established for alternate operating scenarios, emissions trading, and emissions averaging, but excluding terms and conditions for which the permit shield is expressly prohibited under OAC 252:100-8) shall be deemed compliance with the applicable requirements identified and included in this permit.

[OAC 252:100-8-6(d)(1)]

B. Those requirements that are applicable are listed in the Standard Conditions and the Specific Conditions of this permit. Those requirements that the applicant requested be determined as not applicable are summarized in the Specific Conditions of this permit. [OAC 252:100-8-6(d)(2)]

## **SECTION VII. ANNUAL EMISSIONS INVENTORY & FEE PAYMENT**

The permittee shall file with the AQD an annual emission inventory and shall pay annual fees based on emissions inventories. The methods used to calculate emissions for inventory purposes shall be based on the best available information accepted by AQD.

[OAC 252:100-5-2.1, OAC 252:100-5-2.2, & OAC 252:100-8-6(a)(8)]

## **SECTION VIII. TERM OF PERMIT**

A. Unless specified otherwise, the term of an operating permit shall be five years from the date of issuance. [OAC 252:100-8-6(a)(2)(A)]

B. A source's right to operate shall terminate upon the expiration of its permit unless a timely and complete renewal application has been submitted at least 180 days before the date of expiration. [OAC 252:100-8-7.1(d)(1)]

C. A duly issued construction permit or authorization to construct or modify will terminate and become null and void (unless extended as provided in OAC 252:100-8-1.4(b)) if the construction is not commenced within 18 months after the date the permit or authorization was issued, or if work is suspended for more than 18 months after it is commenced. [OAC 252:100-8-1.4(a)]

D. The recipient of a construction permit shall apply for a permit to operate (or modified operating permit) within 180 days following the first day of operation. [OAC 252:100-8-4(b)(5)]

## **SECTION IX. SEVERABILITY**

The provisions of this permit are severable and if any provision of this permit, or the application of any provision of this permit to any circumstance, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

[OAC 252:100-8-6 (a)(6)]

## **SECTION X. PROPERTY RIGHTS**

A. This permit does not convey any property rights of any sort, or any exclusive privilege.

[OAC 252:100-8-6(a)(7)(D)]

B. This permit shall not be considered in any manner affecting the title of the premises upon which the equipment is located and does not release the permittee from any liability for damage to persons or property caused by or resulting from the maintenance or operation of the equipment for which the permit is issued. [OAC 252:100-8-6(c)(6)]

## **SECTION XI. DUTY TO PROVIDE INFORMATION**

A. The permittee shall furnish to the DEQ, upon receipt of a written request and within sixty (60) days of the request unless the DEQ specifies another time period, any information that the DEQ may request to determine whether cause exists for modifying, reopening, revoking, reissuing, terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the DEQ copies of records required to be kept by the permit. [OAC 252:100-8-6(a)(7)(E)]

B. The permittee may make a claim of confidentiality for any information or records submitted pursuant to 27A O.S. § 2-5-105(18). Confidential information shall be clearly labeled as such and shall be separable from the main body of the document such as in an attachment. [OAC 252:100-8-6(a)(7)(E)]

C. Notification to the AQD of the sale or transfer of ownership of this facility is required and shall be made in writing within thirty (30) days after such sale or transfer. [Oklahoma Clean Air Act, 27A O.S. § 2-5-112(G)]

## **SECTION XII. REOPENING, MODIFICATION & REVOCATION**

A. The permit may be modified, revoked, reopened and reissued, or terminated for cause. Except as provided for minor permit modifications, the filing of a request by the permittee for a permit modification, revocation and reissuance, termination, notification of planned changes, or anticipated noncompliance does not stay any permit condition. [OAC 252:100-8-6(a)(7)(C) & OAC 252:100-8-7.2(b)]

B. The DEQ will reopen and revise or revoke this permit prior to the expiration date in the following circumstances:

- (1) Additional requirements under the Clean Air Act become applicable to a major source category three or more years prior to the expiration date of this permit. No such reopening is required if the effective date of the requirement is later than the expiration date of this permit.
- (2) The DEQ or the EPA determines that this permit contains a material mistake or that the permit must be revised or revoked to assure compliance with the applicable requirements.
- (3) The DEQ or the EPA determines that inaccurate information was used in establishing the emission standards, limitations, or other conditions of this permit. The DEQ may revoke and not reissue this permit if it determines that the permittee has submitted false or misleading information to the DEQ.

- (4) DEQ determines that the permit should be amended under the discretionary reopening provisions of OAC 252:100-8-7.3(b).

[OAC 252:100-8-7.3 and OAC 252:100-8-7.4(a)(2)]

- C. The permit may be reopened for cause by EPA, pursuant to the provisions of OAC 100-8-7.3(d).

[OAC 100-8-7.3(d)]

- D. The permittee shall notify AQD before making changes other than those described in Section XVIII (Operational Flexibility), those qualifying for administrative permit amendments, or those defined as an Insignificant Activity (Section XVI) or Trivial Activity (Section XVII). The notification should include any changes which may alter the status of a "grandfathered source," as defined under AQD rules. Such changes may require a permit modification.

[OAC 252:100-8-7.2(b) & OAC 252:100-5-1.1]

- E. Activities that will result in air emissions that exceed the trivial/insignificant levels and that are not specifically approved by this permit are prohibited.

[OAC 252:100-8-6(c)(6)]

### **SECTION XIII. INSPECTION & ENTRY**

- A. Upon presentation of credentials and other documents as may be required by law, the permittee shall allow authorized regulatory officials to perform the following (subject to the permittee's right to seek confidential treatment pursuant to 27A O.S. Supp. 1998, § 2-5-105(18) for confidential information submitted to or obtained by the DEQ under this section):

- (1) enter upon the permittee's premises during reasonable/normal working hours where a source is located or emissions-related activity is conducted, or where records must be kept under the conditions of the permit;
- (2) have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit;
- (3) inspect, at reasonable times and using reasonable safety practices, any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under the permit; and
- (4) as authorized by the Oklahoma Clean Air Act, sample or monitor at reasonable times substances or parameters for the purpose of assuring compliance with the permit.

[OAC 252:100-8-6(c)(2)]

### **SECTION XIV. EMERGENCIES**

- A. Any exceedance resulting from an emergency shall be reported to AQD promptly but no later than 4:30 p.m. on the next working day after the permittee first becomes aware of the exceedance. This notice shall contain a description of the emergency, the probable cause of the exceedance, any steps taken to mitigate emissions, and corrective actions taken.

[OAC 252:100-8-6 (a)(3)(C)(iii)(I) & (IV)]

B. Any exceedance that poses an imminent and substantial danger to public health, safety, or the environment shall be reported to AQD as soon as is practicable; but under no circumstance shall notification be more than 24 hours after the exceedance. [OAC 252:100-8-6(a)(3)(C)(iii)(II)]

C. An "emergency" means any situation arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God, which situation requires immediate corrective action to restore normal operation, and that causes the source to exceed a technology-based emission limitation under this permit, due to unavoidable increases in emissions attributable to the emergency. An emergency shall not include noncompliance to the extent caused by improperly designed equipment, lack of preventive maintenance, careless or improper operation, or operator error. [OAC 252:100-8-2]

D. The affirmative defense of emergency shall be demonstrated through properly signed, contemporaneous operating logs or other relevant evidence that:

- (1) an emergency occurred and the permittee can identify the cause or causes of the emergency;
- (2) the permitted facility was at the time being properly operated;
- (3) during the period of the emergency the permittee took all reasonable steps to minimize levels of emissions that exceeded the emission standards or other requirements in this permit.

[OAC 252:100-8-6 (e)(2)]

E. In any enforcement proceeding, the permittee seeking to establish the occurrence of an emergency shall have the burden of proof. [OAC 252:100-8-6(e)(3)]

F. Every written report or document submitted under this section shall be certified as required by Section III (Monitoring, Testing, Recordkeeping & Reporting), Paragraph F.

[OAC 252:100-8-6(a)(3)(C)(iv)]

## **SECTION XV. RISK MANAGEMENT PLAN**

The permittee, if subject to the provision of Section 112(r) of the Clean Air Act, shall develop and register with the appropriate agency a risk management plan by June 20, 1999, or the applicable effective date. [OAC 252:100-8-6(a)(4)]

## **SECTION XVI. INSIGNIFICANT ACTIVITIES**

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate individual emissions units that are either on the list in Appendix I to OAC Title 252, Chapter 100, or whose actual calendar year emissions do not exceed any of the limits below. Any activity to which a State or Federal applicable requirement applies is not insignificant even if it meets the criteria below or is included on the insignificant activities list.

- (1) 5 tons per year of any one criteria pollutant.

- (2) 2 tons per year for any one hazardous air pollutant (HAP) or 5 tons per year for an aggregate of two or more HAP's, or 20 percent of any threshold less than 10 tons per year for single HAP that the EPA may establish by rule.

[OAC 252:100-8-2 and OAC 252:100, Appendix I]

## **SECTION XVII. TRIVIAL ACTIVITIES**

Except as otherwise prohibited or limited by this permit, the permittee is hereby authorized to operate any individual or combination of air emissions units that are considered inconsequential and are on the list in Appendix J. Any activity to which a State or Federal applicable requirement applies is not trivial even if included on the trivial activities list.

[OAC 252:100-8-2 & OAC 252:100, Appendix J]

## **SECTION XVIII. OPERATIONAL FLEXIBILITY**

A. A facility may implement any operating scenario allowed for in its Part 70 permit without the need for any permit revision or any notification to the DEQ (unless specified otherwise in the permit). When an operating scenario is changed, the permittee shall record in a log at the facility the scenario under which it is operating.

[OAC 252:100-8-6(a)(10) & (f)(1)]

B. The permittee may make changes within the facility that:

- (1) result in no net emissions increases,
- (2) are not modifications under any provision of Title I of the federal Clean Air Act, and
- (3) do not cause any hourly or annual permitted emission rate of any existing emissions unit to be exceeded;

provided that the facility provides the EPA and the DEQ with written notification as required below in advance of the proposed changes, which shall be a minimum of seven (7) days, or twenty four (24) hours for emergencies as defined in OAC 252:100-8-6 (e). The permittee, the DEQ, and the EPA shall attach each such notice to their copy of the permit. For each such change, the written notification required above shall include a brief description of the change within the permitted facility, the date on which the change will occur, any change in emissions, and any permit term or condition that is no longer applicable as a result of the change. The permit shield provided by this permit does not apply to any change made pursuant to this paragraph.

[OAC 252:100-8-6(f)(2)]

## **SECTION XIX. OTHER APPLICABLE & STATE-ONLY REQUIREMENTS**

A. The following applicable requirements and state-only requirements apply to the facility unless elsewhere covered by a more restrictive requirement:

- (1) Open burning of refuse and other combustible material is prohibited except as authorized in the specific examples and under the conditions listed in the Open Burning Subchapter.

[OAC 252:100-13]

- (2) No particulate emissions from any fuel-burning equipment with a rated heat input of 10 MMBTUH or less shall exceed 0.6 lb/MMBTU.

[OAC 252:100-19]

- (3) For all emissions units not subject to an opacity limit promulgated under 40 C.F.R., Part 60, NSPS, no discharge of greater than 20% opacity is allowed except for:
- (a) Short-term occurrences which consist of not more than one six-minute period in any consecutive 60 minutes, not to exceed three such periods in any consecutive 24 hours. In no case shall the average of any six-minute period exceed 60% opacity;
  - (b) Smoke resulting from fires covered by the exceptions outlined in OAC 252:100-13-7;
  - (c) An emission, where the presence of uncombined water is the only reason for failure to meet the requirements of OAC 252:100-25-3(a); or
  - (d) Smoke generated due to a malfunction in a facility, when the source of the fuel producing the smoke is not under the direct and immediate control of the facility and the immediate constriction of the fuel flow at the facility would produce a hazard to life and/or property. [OAC 252:100-25]
- (4) No visible fugitive dust emissions shall be discharged beyond the property line on which the emissions originate in such a manner as to damage or to interfere with the use of adjacent properties, or cause air quality standards to be exceeded, or interfere with the maintenance of air quality standards. [OAC 252:100-29]
- (5) No sulfur oxide emissions from new gas-fired fuel-burning equipment shall exceed 0.2 lb/MMBTU. No existing source shall exceed the listed ambient air standards for sulfur dioxide. [OAC 252:100-31]
- (6) Volatile Organic Compound (VOC) storage tanks built after December 28, 1974, and with a capacity of 400 gallons or more storing a liquid with a vapor pressure of 1.5 psia or greater under actual conditions shall be equipped with a permanent submerged fill pipe or with a vapor-recovery system. [OAC 252:100-37-15(b)]
- (7) All fuel-burning equipment shall at all times be properly operated and maintained in a manner that will minimize emissions of VOCs. [OAC 252:100-37-36]

## SECTION XX. STRATOSPHERIC OZONE PROTECTION

A. The permittee shall comply with the following standards for production and consumption of ozone-depleting substances:

- (1) Persons producing, importing, or placing an order for production or importation of certain class I and class II substances, HCFC-22, or HCFC-141b shall be subject to the requirements of §82.4;
- (2) Producers, importers, exporters, purchasers, and persons who transform or destroy certain class I and class II substances, HCFC-22, or HCFC-141b are subject to the recordkeeping requirements at §82.13; and
- (3) Class I substances (listed at Appendix A to Subpart A) include certain CFCs, Halons, HBFCs, carbon tetrachloride, trichloroethane (methyl chloroform), and bromomethane (Methyl Bromide). Class II substances (listed at Appendix B to Subpart A) include HCFCs.

[40 CFR 82, Subpart A]

B. If the permittee performs a service on motor (fleet) vehicles when this service involves an ozone-depleting substance refrigerant (or regulated substitute substance) in the motor vehicle air conditioner (MVAC), the permittee is subject to all applicable requirements. Note: The term

“motor vehicle” as used in Subpart B does not include a vehicle in which final assembly of the vehicle has not been completed. The term “MVAC” as used in Subpart B does not include the air-tight sealed refrigeration system used as refrigerated cargo, or the system used on passenger buses using HCFC-22 refrigerant. [40 CFR 82, Subpart B]

C. The permittee shall comply with the following standards for recycling and emissions reduction except as provided for MVACs in Subpart B:

- (1) Persons opening appliances for maintenance, service, repair, or disposal must comply with the required practices pursuant to § 82.156;
- (2) Equipment used during the maintenance, service, repair, or disposal of appliances must comply with the standards for recycling and recovery equipment pursuant to § 82.158;
- (3) Persons performing maintenance, service, repair, or disposal of appliances must be certified by an approved technician certification program pursuant to § 82.161;
- (4) Persons disposing of small appliances, MVACs, and MVAC-like appliances must comply with record-keeping requirements pursuant to § 82.166;
- (5) Persons owning commercial or industrial process refrigeration equipment must comply with leak repair requirements pursuant to § 82.158; and
- (6) Owners/operators of appliances normally containing 50 or more pounds of refrigerant must keep records of refrigerant purchased and added to such appliances pursuant to § 82.166.

[40 CFR 82, Subpart F]

## SECTION XXI. TITLE V APPROVAL LANGUAGE

A. DEQ wishes to reduce the time and work associated with permit review and, wherever it is not inconsistent with Federal requirements, to provide for incorporation of requirements established through construction permitting into the Source’s Title V permit without causing redundant review. Requirements from construction permits may be incorporated into the Title V permit through the administrative amendment process set forth in OAC 252:100-8-7.2(a) only if the following procedures are followed:

- (1) The construction permit goes out for a 30-day public notice and comment using the procedures set forth in 40 C.F.R. § 70.7(h)(1). This public notice shall include notice to the public that this permit is subject to EPA review, EPA objection, and petition to EPA, as provided by 40 C.F.R. § 70.8; that the requirements of the construction permit will be incorporated into the Title V permit through the administrative amendment process; that the public will not receive another opportunity to provide comments when the requirements are incorporated into the Title V permit; and that EPA review, EPA objection, and petitions to EPA will not be available to the public when requirements from the construction permit are incorporated into the Title V permit.
- (2) A copy of the construction permit application is sent to EPA, as provided by 40 CFR § 70.8(a)(1).
- (3) A copy of the draft construction permit is sent to any affected State, as provided by 40 C.F.R. § 70.8(b).
- (4) A copy of the proposed construction permit is sent to EPA for a 45-day review period as provided by 40 C.F.R. § 70.8(a) and (c).



- (5) The DEQ complies with 40 C.F.R. § 70.8(c) upon the written receipt within the 45-day comment period of any EPA objection to the construction permit. The DEQ shall not issue the permit until EPA's objections are resolved to the satisfaction of EPA.
- (6) The DEQ complies with 40 C.F.R. § 70.8(d).
- (7) A copy of the final construction permit is sent to EPA as provided by 40 CFR § 70.8(a).
- (8) The DEQ shall not issue the proposed construction permit until any affected State and EPA have had an opportunity to review the proposed permit, as provided by these permit conditions.
- (9) Any requirements of the construction permit may be reopened for cause after incorporation into the Title V permit by the administrative amendment process, by DEQ as provided in OAC 252:100-8-7.3(a), (b), and (c), and by EPA as provided in 40 C.F.R. § 70.7(f) and (g).
- (10) The DEQ shall not issue the administrative permit amendment if performance tests fail to demonstrate that the source is operating in substantial compliance with all permit requirements.

B. To the extent that these conditions are not followed, the Title V permit must go through the Title V review process.

## **SECTION XXII. CREDIBLE EVIDENCE**

For the purpose of submitting compliance certifications or establishing whether or not a person has violated or is in violation of any provision of the Oklahoma implementation plan, nothing shall preclude the use, including the exclusive use, of any credible evidence or information, relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test or procedure had been performed.

[OAC 252:100-43-6]

Valero Refining Company - Oklahoma  
Valero Ardmore Refinery  
Attn: Mr. John Shriver, P.E.  
Environmental Manager  
Post Office Box 188  
Ardmore, OK 74302

Re: Permit No. **98-172-TV (PSD)**  
Valero Ardmore Refinery  
Ardmore, Carter County

Dear Mr. Shriver:

Enclosed is the modified permit authorizing operation of the referenced facility. Please note that this permit is issued subject to the standard and specific conditions, which are attached. These conditions must be carefully followed since they define the limits of the permit and will be confirmed by periodic inspections.

Also note that you are required to annually submit an emissions inventory for this facility. An emissions inventory must be completed on approved AQD forms and submitted (hardcopy or electronically) by April 1<sup>st</sup> of every year. Any questions concerning the form or submittal process should be referred to the Emissions Inventory Staff at 405-702-4100.

Thank you for your cooperation in this matter. If we may be of further service, please contact me at [eric.milligan@deq.state.ok.us](mailto:eric.milligan@deq.state.ok.us) or (405) 702-4217.

Sincerely,

Eric L. Milligan, P.E.  
Engineering Section  
**AIR QUALITY DIVISION**

Enclosures



# PART 70 PERMIT

AIR QUALITY DIVISION  
STATE OF OKLAHOMA  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
707 NORTH ROBINSON, SUITE 4100  
P.O. BOX 1677  
OKLAHOMA CITY, OKLAHOMA 73101-1677

Permit No. 98-172-TV (PSD)

Valero Energy Company - Oklahoma,  
having complied with the requirements of the law, is hereby granted permission to operate  
the Valero Ardmore Refinery, located in Sections 16, 17, 20, & 21, T4N, R2E, in Carter  
County, Oklahoma, in accordance with this permit, subject to Standard Conditions dated  
January 24, 2008, and the Specific Conditions, both attached.

This permit shall expire five years from the date of issuance, except as authorized under Section VIII of the Standard Conditions.

\_\_\_\_\_  
Division Director, Air Quality Division

\_\_\_\_\_  
Date